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UNITED STATES AIR FORCE

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# OCCUPATIONAL SURVEY REPORT

F-16/A-10 AVIONICS TEST STATION AND COMPONENTS  
CAREER LADDER

AFSC 451X5

AFPT 90-451-849

JUNE 1990

**OCCUPATIONAL ANALYSIS PROGRAM  
USAF OCCUPATIONAL MEASUREMENT CENTER  
AIR TRAINING COMMAND  
RANDOLPH AFB, TEXAS 78150-5000**

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6. Name of the Interviewer	
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## PREFACE

This report presents the results of a detailed Air Force Occupational Survey of the F-16/A-10 Avionics Test Station & Component career ladder (AFSC 451X5). Authority for conducting occupational surveys is contained in AFR 35-2. Computer products upon which this report is based are available for use by operations and training officials.

The survey instrument was developed by Mr Roberto B. Salinas, who also analyzed the data and wrote the final report. Computer programming and administrative support were provided by Mrs Rebecca Hernandez and Ms Tamme Lambert, respectively. This report was reviewed and approved by Lieutenant Colonel Charles D. Gorman, Chief, Airman Analysis Branch, Occupational Analysis Division, USAF Occupational Measurement Center (USAFOMC).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to the USAF Occupational Measurement Center, Attention: Chief, Occupational Analysis Division (OMY), Randolph AFB, Texas 78150-5000 (AUTOVON 487-6623).

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## SUMMARY OF RESULTS

1. Survey Coverage: The F-16/A-10 Avionics Test Station and Components career ladder was surveyed to obtain current data for use in assessing the current classification structure for this AFS and determining whether the present training program is designed to adequately prepare F-16 and A-10 Avionics personnel for their first assignment. Survey results are based on responses from 540 respondents (74 percent of the total assigned population). All major using commands are well represented in the survey sample.
2. Specialty Jobs: Four clusters were identified in the sample. Two clusters (F-16 Test Stations and A-10 Avionics) were involved in the performance of the various technical duties of the career ladder (75 percent of the survey sample). The remaining clusters were oriented toward supervisory, managerial, administrative, and training activities.
3. Career Ladder Progression: Personnel at the 3- and 5-skill levels in each aircraft group (F-16 and A-10) spent practically all of their job time performing technical duties and tasks across a wide variety of different jobs. Although 7-skill level NCOs still devote over 50 percent of their relative duty time to nonsupervisory tasks across a number of different jobs, a shift toward supervisory functions is quite clear.
4. AFR 39-1 Specialty Descriptions: All descriptions accurately depict the nature of the respective jobs.
5. Training Analysis: The Specialty Training Standard (STS) and the Plans of Instruction (POI) for the 3ABR courses are not generally supported by OSR data when measured by the normal ATC criteria. These documents, as well as the general training philosophy for this career ladder, should be thoroughly evaluated by training personnel and career ladder managers to determine the most effective and efficient way to provide training to the diverse functions of this career ladder.
6. Implications: The diversity of the career ladder is such that the usual ATC measurement criteria do not support the training documents and the current courses. A comprehensive review of the career ladder structure, personnel utilization policies, and the current training system is needed.

OCCUPATIONAL SURVEY REPORT  
F-16/A-10 AVIONICS TEST STATION AND COMPONENT CAREER LADDER  
(AFSC 451X5)

INTRODUCTION

This is an occupational survey report of the F-16/A-10 Avionics Test Station and Component career ladder completed by the Occupational Analysis Division, USAF Occupational Measurement Center. This survey was requested by HQ ATC/TTOA, Randolph AFB TX, to obtain current task and equipment data for use in evaluating current training programs. This is the first survey of this AFSC since it was restructured under the April 1987 Rivet Workforce initiative.

Background

As described in AFR 39-1 Specialty Descriptions, personnel in this career ladder use shop avionic support equipment and specialized precision measuring equipment (PME) to inspect, troubleshoot, repair, modify, program, calibrate, and certify avionics computerized and manual stations, consoles, and support equipment for F-16 and A-10 aircraft.

Primary entry into the career ladder is from Basic Military Training School (BMTS) through a Category A 32-week and 1-day formal training course (G3ABR45135 002-Apprentice F-16/A-10 Avionics Test Station and Component Specialist) conducted at Lowry AFB CO. Eleven of these 32 weeks are spent in electronic principles (EP), with the remainder of the course consisting of applied F-16 Avionics Intermediate Shop (AIS) principles. The course is a combination of hands-on training and theory of operation. The curriculum includes the study of manual equipment (F-16 C/D, A-10), computer complex, station power and cooling, common core switching unit measurement and stimulus subsystem, Computer Inertial (CI) Test Station, Displays/Indicator (D/I) Test Station, Radio Frequency (RF) Test Station, and Pneumatics/Processors Test Station. Students use CI, D/I, RF, and P/P test stations and respective F-16 AIS software to troubleshoot and performance test selected line replaceable units. Entry into the career ladder currently requires an Armed Services Vocational Aptitude Battery (ASVAB) Electronic score of 67.

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## SURVEY METHODOLOGY

### Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory AFPT 90-451-849, dated February 1989. A tentative task list was initially prepared using pertinent career ladder publications and directives. The preliminary task list was refined and validated through personal interviews with 30 subject-matter experts (selected to cover a variety of major commands (MAJCOM) and varying types of aircraft) at the following locations:

<u>BASE</u>	<u>REASON FOR VISIT</u>
Lowry AFB CO	Location of ATC technical training courses
Hill AFB UT	Representative of an F-16 avionics shop
Nellis AFB NV	Representative of separate F-16 & A-10 avionics shops
England AFB LA	Representative of an A-10 avionics shop
Myrtle Beach AFB SC	Representative of an A-10 avionics shop
Shaw AFB SC	Representative of an F-16 Avionics Shop

The resulting job inventory contained a comprehensive listing of 784 tasks grouped under 18 duty headings and a background section requesting such information as grade, duty title, type of facility to which assigned, and equipment used or operated.

### Survey Administration

From May through August 1989, Consolidated Base Personnel Offices (CBPO) at operational bases worldwide administered the inventory to job incumbents holding DAFSCs 45135, 45155, and 45175. Job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Human Resources Laboratory (AFHRL).

Each individual who completed the inventory first completed an identification and biographical information section and then checked each task performed in his or her current job. After checking all tasks performed, each member then rated each of these tasks on a 9-point scale showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount spent).

To determine relative time spent for each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

### Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across major commands (MAJCOM) and paygrade groups. All eligible DAFSC 451X5 personnel were mailed survey booklets. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 451X5 personnel as of March 1989. The 540 respondents in the final sample represent 74 percent of the total assigned AFSC 451X5 personnel. Table 2 reflects the paygrade distribution for 451X5 personnel. As reflected in these tables, the survey sample is an excellent representation of the career ladder population.

### Task Factor Administration

While most participants in the survey process completed a USAF Job Inventory, selected senior 451X5 personnel were asked to complete booklets rendering judgements on task training emphasis (TE) or task difficulty (TD). The TE and TD booklets were processed separately from the job inventories. The information gained from these task factor data is used in various analyses and is a valuable part of the training decision process.

Task Difficulty (TD). Each individual completing a TD booklet was asked to rate all of the tasks on a 9-point scale (from extremely low to extremely high) as to the relative difficulty of each task in the inventory. Difficulty is defined as the length of time required by the average incumbent to learn to do the task. Task difficulty data were independently collected from 85 primarily 7-skill level personnel stationed worldwide. Interrater reliability was determined to be adequate, which reflects a satisfactory agreement among raters. Ratings were standardized so tasks have an average difficulty of 5.00, with a standard deviation of 1.00. The resulting data yield essentially a rank ordering of tasks indicating the degree of difficulty for each task in the inventory.

Training Emphasis (TE). Individuals completing TE booklets were asked to rate tasks on a 10-point scale (from no training required to extremely high amount of training required). Training emphasis is a rating of which tasks require structured training for first-term personnel. Structured training is defined as training provided at resident technical schools, field training detachments (FTD), mobile training teams (MTT), formal OJT, or any other organized training method. Training emphasis data were independently collected from 51 (F-16) and 19 (A-10) experienced 7-skill level personnel stationed worldwide. The interrater reliability for these raters was also adequate, indicating



TABLE 1  
MAJCOM REPRESENTATION IN SAMPLE

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
TAC	48	50
USAFE	24	26
PACAF	14	14
ATC	9	6
AFSC	3	2
AAC	1	1
AFLC	1	1

TOTAL ASSIGNED = 725  
 TOTAL SURVEYED = 640  
 TOTAL IN SURVEY SAMPLE = 540  
 PERCENT OF ASSIGNED IN SAMPLE = 74%  
 PERCENT OF SURVEYED IN SAMPLE = 84%

\* Assigned strength as of March 1989

TABLE 2  
PAYGRADE DISTRIBUTION OF SAMPLE

<u>PAYGRADE</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
E-1 to E-3	16	14
E-4	25	24
E-5	36	39
E-6	17	16
E-7	6	7

\* Assigned strength as of March 1989

there was satisfactory agreement among raters as to which tasks required some form of structured training and which did not. In this specialty, the average TE rating was 1.67 for F-16 tasks. Tasks considered high in training emphasis have ratings of 3.07 and above. The average TE rating for A-10 tasks was 1.70. A-10 tasks considered high in training emphasis have ratings of 3.19 and above. As was discussed in the Task Difficulty (TD) section, TE rating data may also be used to rank order tasks indicating those tasks which senior NCOs in the field consider the most important for the first-term airman to know.

When used in conjunction with the primary criterion of percent members performing, TD and TE ratings can provide insight into first-term personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting AFS entry-level jobs.

#### SPECIALTY JOBS (Career Ladder Structure)

A USAF occupational analysis begins with an examination of the career ladder structure. The structure of jobs within the F-16/A-10 Avionics Test Station and Components career ladder was examined on the basis of similarity of tasks performed and the percent of time spent ratings provided by job incumbents, independent of other specialty background factors.

Each individual in the sample performs a set of tasks called a job. For the purpose of organizing individual jobs into similar units of work, an automated job clustering program is used. This hierarchical grouping program is a basic part of the Comprehensive Occupational Data Analysis Program (CODAP) system for job analysis. Each individual job description (all the tasks performed by that individual and the relative amount of time spent on those tasks) in the sample is compared to every other job description in terms of tasks performed and the relative amount of time spent on each task in the job inventory. The automated system is designed to locate the two job descriptions with the most similar tasks and percent time ratings and combine them to form a composite job description. In successive stages, new members are added to initial groups or new groups are formed based on the similarity of tasks performed and similar time ratings in the individual job descriptions.

The basic identifying group used in the hierarchical job structuring process is the Job. When there is a substantial degree of similarity between Jobs, they are grouped together and identified as a Cluster. The job structure information resulting from this grouping process (the various jobs within the career ladder) can be used to evaluate the accuracy of career ladder documents (AFR 39-1 Specialty Descriptions and Specialty Training Standards) and to gain a better understanding of current utilization patterns. The above terminology will be used in the discussion of the 451X5 career ladder structure.

## Overview of Specialty Jobs

Responses from the 451X5 personnel in the survey sample indicate a career ladder that is clearly divided according to which aircraft or weapon system is being supported, with only a limited number of general maintenance-type tasks appearing in common across the jobs identified. Structure analysis identified four clusters within the survey sample. Based on task similarity and relative time spent, the division of jobs performed by 451X5 personnel is illustrated in Figure 1, and a listing of those clusters is provided below. The stage (STG) number shown beside each title is a reference to computer-printed information; the number of personnel in each group (N) is also shown.\*

- I. F-16 TEST STATION CLUSTER (STG19, N=295)
  - A. Radio Frequency (RF) Test Station (STG80, N=60)
  - B. Processors/Pneumatics (P/P) Test Station (STG105, N=66)
  - C. Multistation Supervisory Job (STG73, N=33)
  - D. Computer Inertial (CI) Test Station (STG90, N=70)
  - E. Displays/Indicators (D/I) Test Stations (STG42, N=61)
- II. A-10 AVIONICS CLUSTER (STG29, N=108)
- III. SUPERVISORY, MANAGERIAL, AND ADMINISTRATIVE CLUSTER (STG09, N=102)
- IV. TRAINING CLUSTER (STG18, N=19)

\* Job types which vary somewhat from the cluster itself are listed separately. Thus, the number of personnel in the identified subgroups will not equal the cluster number as a whole.

The respondents forming these groups account for 98 percent of the survey sample. The remaining 2 percent were performing tasks or series of tasks which did not group with any of the defined jobs. Job titles given by respondents which were representative of these personnel included Courseware Developer and Scenario Developer.

## Group Descriptions

The following paragraphs contain brief descriptions of the clusters identified through the career ladder structure analysis. Selected background data for these groups are provided in Table 3. Representative tasks for all the groups are contained in Appendix A.

I. F-16 TEST STATION CLUSTER (STG19). This cluster is comprised of five job variations which identify four specific F-16 test station jobs and an F-16 multistation supervisory job. The tasks in each job involve the operation, testing, and repair of a specific F-16 test station and the F-16 line replaceable units (LRU) each station tests. Typical tasks performed in this cluster include:

## AFSC 451X5 SPECIALTY JOBS (N= 540)

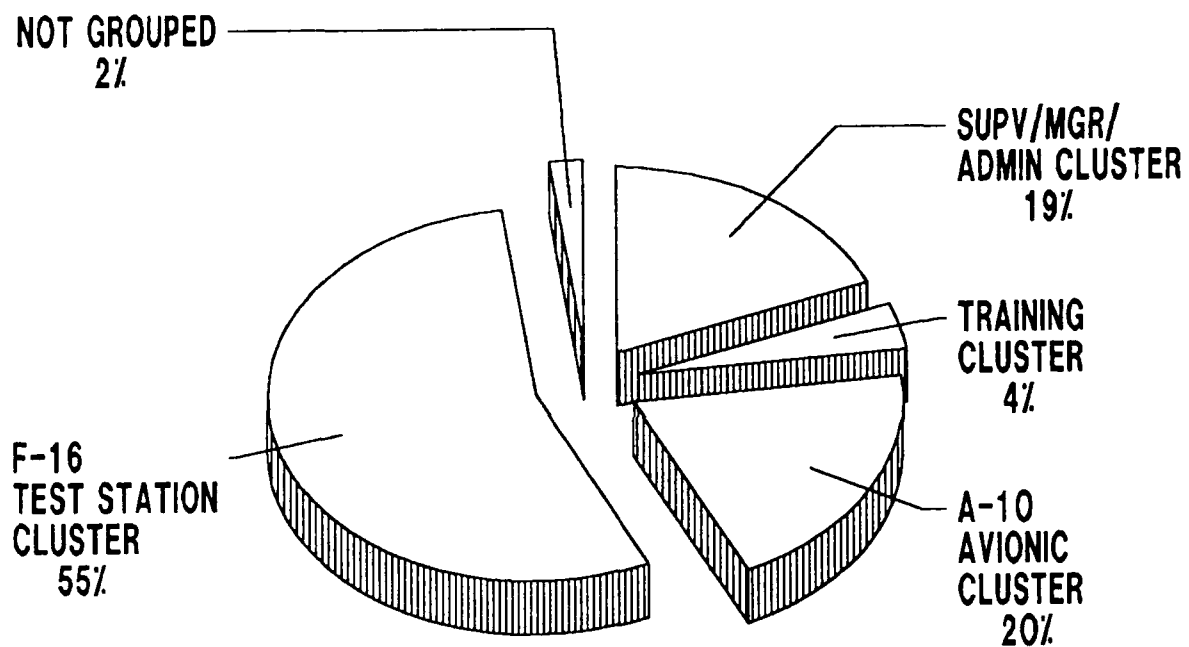


FIGURE 1

TABLE 3

## SELECTED BACKGROUND DATA FOR SPECIALTY JOB CLUSTERS

TEST STATION CLUSTER	F-16 Job Variations									
	RF TEST STA	P/P TEST STA	MULTI STA		CI TEST STA	D/I TEST STA	A-10 AVIONICS CLUSTER	SUPV/MGR/ADMIN		TNG CLUSTER
			SUPV	TEST STA				CLUSTER	CLUSTER	
NUMBER IN GROUP	265	60	66	33	70	61	108	102	19	19
PERCENT OF SAMPLE	55%	11%	12%	6%	13%	11%	20%	19%	4%	4%
PERCENT IN CONUS	51%	50%	62%	36%	50%	51%	64%	58%	84%	84%
-----										
DAFSC DISTRIBUTION										
45135	19%	20%	21%	*	20%	25%	10%	*	*	*
45155	55%	65%	58%	52%	53%	48%	62%	14%	47%	47%
45175	26%	15%	21%	48%	27%	28%	28%	86%	53%	53%
-----										
PREDOMINANT GRADES	E-5/4	E-5/4	E-5/4	E-5/6	E-5/4	E-5/4	E-5/4	E-6/7	E-5/6	E-5/6
AVG MONTHS IN CAREER FIELD	52	51	47	72	45	52	48	91	81	81
AVG MONTHS IN SERVICE	80	72	76	113	73	79	85	164	103	103
PERCENT IN FIRST ENLISTMENT	28%	29%	21%	*	23%	34%	26%	1%	*	*
-----										
PERCENT SUPERVISING	42%	38%	44%	94%	49%	38%	50%	67%	21%	21%
AVG NUMBER OF TASKS PERFORMED	138	122	137	277	112	116	163	58	35	35

\* Denotes less than 1 percent

- Repairing F-16 test station disc drives
- Calibrating CI test stations
- Performing confidence tests on P/P test stations
- Setting up, aligning, & calibrating photometric benches
- Performing diagnostic tests of RF test stations

Representing 55 percent of the survey sample, this cluster has the largest number of respondents (295), of which 49 percent reflect an overseas location. The majority of these airmen report holding a 5-skill level DAFSC (55 percent). Twenty-eight percent indicate they are in their first enlistment. Personnel average over 4 years in the career field and 3 years in their present job. Test stations comprising this cluster are described below.

A. Radio Frequency (RF) Test Station (STG80). This job is distinguished from other jobs in the cluster by the performance of tasks relating to the RF test station and associated line replaceable units, such as radar antennas, identification friend or foe/receiver transmitters (IFFRT), and frequency selective systems. The 60 respondents, representing 11 percent of the sample, perform an average of 122 tasks. Examples of specialized tasks they perform include:

- Aligning RF test stations
- Repairing radar transmitters
- Performance test radar antennas
- Performing diagnostic tests of RF test stations
- Performing diagnostic tests of LPRF or modular LPRF

This group reflects the largest concentration of airmen with a 5-skill level DAFSC (65 percent). They report an average of 3 years in their present job and over 4 years in the career ladder.

B. Processors/Pneumatics (P/P) Test Station (STG105). In this job, respondents indicate spending 80 percent of their relative job time performing tasks associated with the P/P test station and its peculiar tester replaceable units (TRU), and switching unit/measurement & stimulus systems (SUMSS) with printed circuit boards (PCB) used to operationally test specific line replaceable units (LRU) assigned to the unit. Representative of the average 137 tasks performed are:

- Repairing ALR-69 signal processors
- Repairing P/P test stations
- Analyzing Atlas programs for fault isolation of P/P LRUs
- Calibrating P/P test stations
- Repairing F-16 central air data computers (CADC)

These experienced airmen (12 percent of the sample) report an average of over 3 years in their present job and 4 years in the career field. In addition to having the largest CONUS population (62 percent) in the cluster, this group (N=66) also has the largest percentage (62 percent) of its population assigned to Tactical Air Command.

C. Multistation Supervisory Job (STG73). Unlike the other jobs in this cluster, whereby an airman is assigned and specializes in only one test station, this job requires an individual to be qualified in a multitude of test stations. He is also responsible for the production of work and direct supervision of like test stations. It's no surprise then, that these predominant E-5 and E-6 personnel perform an average of 277 tasks (113 tasks more than any other job in the study). This group spends 99 percent of their relative job time performing supervisory tasks and working on multiple test stations such as computer/inertial, processors/pneumatics, and displays/indicators test stations. Representative tasks include:

- Supervising F-16/A10 Avionics Test Station & Components Spec/Tech
- Determining work priorities
- Writing Enlisted Performance Reports (EPR)
- Analyzing Atlas programs for fault isolation of CI test station failures
- Repairing P/P test stations
- Performing diagnostic tests of displays/indicators test stations

Sixty-four percent of the respondents comprising this group (smallest in the cluster, with an N of 33) are located overseas and represent 6 percent of the entire sample. These highly experienced senior airmen (over 6 years in career field and 5 in their present job) average 9 years of Total Active Federal Military Service.

D. Computer Inertial (CI) Test Station (STG90). In this job, fire control computers (FCC), inertial navigational units (INU), and data transfer units (DTU) are but a few of the line replaceable units (LRU) which are operationally tested with a CI test station. This job is performed by the largest number of personnel in the cluster accounting for 13 percent of the sample (N=70). This group performs an average of 112 tasks relating to the CI test station. Representative tasks include:

- Calibrating CI test stations
- Performing diagnostic tests of electronic component assemblies (ECA)
- Removing and replacing CI test station tester replaceable units (TRU)
- Repairing F-16 inertial navigational units
- Aligning CI test stations



The predominant paygrades for this group are E-4 and E-5, with 53 percent indicating a 5-skill level DAFSC. The average time in career field and present job reported by this moderately experienced group is 4 and 3 years, respectively. The respondents were equally distributed overseas and CONUS, reflecting over 6 years of Total Active Federal Military Service (TAFMS).

E. Displays/Indicators (D/I) Test Station (STG42). The 61 respondents who identified this job reportedly spend 76 percent of their relative job time in the performance of tasks associated with the D/I test station which is used to operationally test LRUs, such as head-up display pilot's display units (HUD PDU), radar electro optical indicator units (REO IU), and attitude direction indicators. Some of the most representative tasks performed by this group are:

- Setting up, aligning, and calibrating photometric benches
- Performing diagnostic tests of D/I test stations
- Aligning D/I test stations
- Repairing wide angle conventional head-up display/electronic units (HUD/EU)
- Repairing D/I test station SRUs

This group (11 percent of the sample) reflects the largest percent of personnel in their first enlistment (34 percent) and the largest 3-skill level DAFSC (25 percent) in the study, and reflects predominant paygrades of E-4 and E-5. These moderately experienced airmen average 4 years in the career field and 2 years in their present job.

II. A-10 AVIONICS CLUSTER (STG29). The most distinguishing feature of this job cluster, compared to the previous cluster discussed, is to the performance of tasks related to the A-10 model aircraft and associated line replaceable units (LRU) and aircraft systems. In this job, the majority of A-10 LRUs are checked out with manual equipment. There are, however, five LRUs, such as the central air data computer (CADC), the master bus controller (MBC), and the control display unit (CDU), which are tested using an intermediate automatic test system (IATS). The 108 members comprising this cluster account for 20 percent of the survey sample. They spend 89 percent of their relative job time performing an average of 163 tasks. Typical tasks performed by a majority of this group include:

- Repairing UHF receiver transmitters (RT)
- Repairing SAS computers (Stability Augmentation Systems)
- Performing IATS confidence testing (CNF)
- Aligning A-10 projection units (PU)
- Bench checking altimeters

This group is moderately experienced, reporting 4 years in the career field, 2 years in their present job, and average over 7 years of Total Active Federal Military Service. Sixty-two percent indicate holding a 5-skill DAFSC and reflect predominant grades of E-4/E-5.

III. SUPERVISORY, MANAGERIAL, AND ADMINISTRATIVE CLUSTER (STG09). The jobs in this cluster vary in accordance to the specific assigned function and pertain to the performance of tasks relating to direct supervision of personnel, management as directors and policy makers, or administrative duties of supply operations. The 102 respondents comprising this job (19 percent of the survey sample) perform an average of 58 tasks in the nontechnical areas just mentioned. Representative tasks performed by this group include:

- Determining work priorities
- Writing APRs
- Counseling personnel
- Supervising F-16/A-10 Avionics Test Station and  
Component Specialists/Technicians
- Drafting higher headquarters directives
- Writing staff studies, surveys, or special reports  
other than training
- Verifying and updating repair cycle asset management  
lists
- Verifying supply due-out listings

Personnel in this group reflect the highest experience level of all the groups identified, with an average well over 7 years in the career field and almost 14 years of Total Active Federal Military Service. In addition, 86 percent report holding a 7-skill level DAFSC. Forty-two percent of the respondents reported an overseas location, with a little over 2 years in their present job.

IV. TRAINING CLUSTER (STG18). This job, accounting for only 4 percent of the total sample, is comprised of 19 instructors who are responsible for the instruction and technical training provided to entry-level personnel at the Lowry Technical Training Center. Areas of responsibility include counseling, evaluation, and classroom and laboratory training. Some of the most representative tasks performed by this group are:

- Preparing lesson plans
- Scoring tests
- Administering tests
- Conducting resident course classroom training
- Evaluating resident course students
- Writing test questions

These highly experienced instructors reflect 7 years in the career field and 3 years in their present job. The group reports an average of 9 years of Total Active Federal Military Service, with predominant grades of E-5 and E-6 (73 and 15 percent, respectively).

### Comparisons of Specialty Jobs

Four clusters were identified in the career ladder structure analysis. One cluster was comprised of five distinct jobs primarily involving four test stations and a multistation supervisory function, all of which are associated with F-16 avionics. Another cluster incorporated jobs involving supervisory, managerial, and administrative duties. The balance of the four clusters represented separate and distinct activities within the career ladder. Each of these four entities is highly specialized and basically stands alone within the career ladder, with little or no significant overlap of common tasks performed with any of the other jobs (with the exception of general maintenance tasks such as performing foreign object damage prevention walks, loading test programs on discs, and updating software). This high degree of specialization associated with each aircraft model (F-16 and A-10) accounts for the disparate nature of this career ladder.

### COMPARISON TO PREVIOUS SURVEY

The results of this survey were compared to those of a previous Occupational Survey Report AFPT 90-326-428D, dated April 1982, for the Integrated Avionics Computerized Test Station and Component (F-16) career ladder (former AFSC 326X4C). Note: No OSR data were available for the Integrated Avionics Computerized Test Station and Component (A-10) career ladder (AFSC 326X4D). This specialty was merged with AFSC 326X4C (Integrated Computerized Test Station and Component F-16/A-10 career ladder) on 31 Oct 1986 and subsequently converted to its present AFSC 451X5 on 30 April 1987.

The identified career ladder structure for AFSC 451X5 (F-16) career ladder in the present survey was similar to that of 1982, indicating the types of jobs which existed for F-16 Avionics personnel in 1982 have remained relatively unchanged through the years. In both analyses, jobs associated with Radio Frequency (RF), Processors/Pneumatics (P/P), Computer Inertial (CI), and Displays/Indicators (D/I) Test Stations and associated line replaceable units (LRU) were identified. The current study also recognized a Multistation Supervisory Job which the 1982 survey broke into two distinct jobs: Senior Multiple Test Station Personnel and Junior Multiple Test Station Personnel. Comparison of current group descriptions to previous survey findings is shown on Table 4.

TABLE 4

## JOB COMPARISONS BETWEEN CURRENT AND 1982 SURVEYS

CURRENT		1982
I. F-16 Test Station Cluster (N=295)		I. Integrated Avionics Test Station Personnel (N=128)
A. Radio Frequency (RF) Test Station (N=60)		A. Radio Frequency (RF) Test Station Personnel (N=20)
B. Processors/Pneumatics (P/P) Test Station (N=66)		B. Processors and Pneumatics Test Station Personnel (N=25)
C. Multistation Supervisory Job (N=33)		C. Senior Multiple Test Station Personnel (N=25)
D. Computer Inertial (CI) Test Station (N=70)		Junior Multiple Test Station Personnel (N=6)
E. Displays/Indicators (D/I) Test Station (N=61)		D. Computer Inertial (CI) Test Station Personnel (N=25)
II. Supervisory, Managerial, and Administrative Cluster (N=102)*		E. Displays and Indicators Test Station Personnel (N=61)
III. Training Cluster (N=19)*		II. Supervision and Management Personnel Cluster (N=31)
IV. A-10 Avionics Cluster (N=108)		III. Resident Technical School Instructors (N=13)
		Note: Merger between F-16 and A-10 did not occur until 31 Oct 1986

\* Includes A-10 Personnel

## ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as AFR 39-1 Specialty Descriptions and the Specialty Training Standard (STS), reflect what career ladder personnel are actually doing in the field.

A comparison of the duty and task performance between DAFSCs 45135 and 45155 indicated that, while there are some minor differences, by and large, the jobs they perform are similar, as evidenced by a 78 percent-time-spent overlap on tasks. Therefore, the two groups will be discussed as a combined group in this report.

The distribution of skill-level groups across the career ladder jobs is displayed in Table 5, while Table 6 offers another perspective by displaying the relative percent time spent on each duty across the skill-level groups. A typical pattern of progression is present, with personnel spending more of their relative time on duties involving supervisory, managerial, and training tasks (see Table 6, Duties A, B, C, and D) as they move upward to the 7-skill level. Table 7 displays those tasks which most clearly differentiate the 3-/5-skill level and 7-skill level groups. It is also obvious, though, that 7-skill level personnel are still involved with technical task performance, as will be pointed out in the specific skill-level group discussions below.

### Skill Level Descriptions

DAFSCs 45135/45155. The 328 airmen in the 3- and 5-skill level group (representing 61 percent of the survey sample) performed an average of 121 tasks. Performing a highly technical job, 91 percent of their relative duty time is devoted to tasks covering a variety of functions associated with the operational testing of line replaceable units and various aircraft systems belonging to the F-16 and A-10 model aircraft. As shown in Table 5, personnel in this group are represented in all of the jobs identified in the SPECIALTY JOBS section analysis, with 93 percent concentrated in the three nonsupervisory clusters identified. Table 8 displays selected representative time-consuming tasks performed by the highest percentages of these airmen. A review of all the tasks performed by group members revealed that only 26 tasks are performed by 50 percent or more of the group. This low number of common tasks performed by these airmen suggests a very diverse career ladder. This is quite evident, with only a 28 percent-time-spent overlap on tasks performed by F-16 3-/5-skill levels and A-10 3-/5-skill levels. Essentially, based on OSR data, the commonality of tasks performed between aircraft groups does not exist. Table 9 displays tasks which best differentiate between F-16 DAFSC 45135/45155 and A-10 DAFSC 45135/45155 personnel. Representative tasks performed by each aircraft group with 3-/5-skill levels are shown on Tables 10 and 11.

TABLE 5

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS  
CAREER LADDER JOBS

CAREER LADDER JOBS	DAFSC 45135/45155 (N=328)		DAFSC 45175 (N=212)	
	NUMBER	PERCENT	NUMBER	PERCENT
I. F-16 TEST STATIONS CLUSTER (N=295)	218	66%	77	36%
A. Radio Frequency (RF) Test Station (N=60)	51	16%	9	4%
B. Processors/Pneumatics (P/P) Test Station (N=66)	52	16%	14	7%
C. Multistation Supervisory Job (N=33)	17	5%	16	8%
D. Computer Inertial (CI) Test Station (N=70)	51	16%	19	9%
E. Displays/Indicators (D/I) Test Station (N=61)	44	13%	17	8%
II. A-10 Avionics Cluster (N=108)	78	24%	30	14%
III. Supervisory, Managerial, and Administrative Cluster (N=102)	14	4%	88	42%
IV. Training Cluster (N=19)	9	3%	10	5%
Not Grouped	9	3%	7	3%

TABLE 6

AVERAGE PERCENT TIME SPENT PERFORMING DUTIES BY DAFSC GROUPS  
(RELATIVE PERCENT OF JOB TIME)

DUTIES	45135/55 (N=328)	45175 (N=212)
A ORGANIZING AND PLANNING	2	10
B DIRECTING AND IMPLEMENTING	2	10
C INSPECTING AND EVALUATING	2	12
D TRAINING	3	7
E MAKING ENTRIES ON FORMS AND RECORDS	9	9
F PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	6	9
G PERFORMING GENERAL MAINTENANCE	18	13
H MAINTAINING COMPUTER INERTIAL (CI) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	10	6
I MAINTAINING DISPLAYS/INDICATORS (D/I) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	8	5
J MAINTAINING PROCESSORS/PNEUMATICS (P/P) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	10	5
K MAINTAINING RADIO FREQUENCY (RF) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	9	3
L MAINTAINING MOCK-UPS AND MANUALLY TESTED EQUIPMENT	11	5
M MAINTAINING A-10 INERTIAL NAVIGATIONAL SYSTEMS (INS), INTERMEDIATE AUTOMATIC TEST STATIONS, AND ASSOCIATED LRUs	3	1
N MAINTAINING A-10 WEAPONS CONTROL SYSTEMS (WCS)	1	1
O MAINTAINING INTERPHONE SYSTEMS, COCKPIT RECORDERS, SECURE VOICE SYSTEMS	*	*
P MAINTAINING SATELLITE RECEIVER TIMING SYSTEMS	*	*
Q MAINTAINING INERTIAL NAVIGATION UNITS (INU), FLIGHT INSTRUMENTS, AND QUANTITY INDICATING LRUs	4	2
R MAINTAINING A-10 SUPPORT EQUIPMENT	1	1

\* Denotes less than 1 percent

TABLE 7

TASKS WHICH BEST DIFFERENTIATE BETWEEN  
DAFSC 45135/45155 AND DAFSC 45175 PERSONNEL  
(PERCENT MEMBERS PERFORMING)

TASKS	45135/55 (N=328)	45175 (N=212)	DIFFERENCE
G229 REMOVE OR REPLACE SOLDERED CONNECTORS	71	43	+28
G206 PERFORM FUNCTIONAL CHECKS OF LINE REPLACEABLE UNITS (LRU) ISSUED FROM HARDWARE	78	51	+27
G202 PERFORM CORROSION CONTROL OF AVIONICS EQUIPMENT	66	41	+25
G238 REMOVE OR REPLACE TEST STATION ITA OR LRU MINOR HARDWARE	66	41	+25
G209 PERFORM PERIODIC INSPECTIONS OF TEST STATIONS	68	44	+24
G230 REMOVE OR REPLACE SOLDERLESS PINS OR CONNECTORS	64	43	+21
G184 INSPECT AND CLEAN TEST STATIONS EXCEPT FOR INSPECTIONS FOR CARBON FIBER CONTAMINATION	52	31	+21
G205 PERFORM FOREIGN OBJECT DAMAGE (FOD) PREVENTION WALKS	50	30	+20
<hr/>			
C85 WRITE APRs	27	72	-45
B49 SUPERVISE INTEGRATED F-16/A-10 AVIONICS TEST STATION AND COMPONENT TECHNICIANS (AFSC 45175)	4	47	-43
B30 COUNSEL PERSONNEL	25	67	-43
A3 COORDINATE JOB REQUIREMENTS WITH OTHER SECTIONS	9	48	-39
C53 CERTIFY STATUS OF REPARABLE, SERVICEABLE, OR CONDEMNED PARTS	23	61	-38
B40 IMPLEMENT SELF-INSPECTION PROGRAMS	7	41	-34
C52 ANALYZE WORKLOAD REQUIREMENTS	13	43	-30
B39 IMPLEMENT SECURITY PROGRAMS	6	35	-29



TABLE 8  
REPRESENTATIVE TASKS PERFORMED  
BY 45135/45155 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=328)
E135 MAKE ENTRIES ON DD FORMS 1574 (SERVICEABLE TAG-MATERIEL)	82
E128 MAKE ENTRIES ON AFTO FORMS 350 (REPARABLE ITEM PROCESSING TAG)	80
F160 RESEARCH TECHNICAL DATA FOR PART NUMBERS	66
G192 LOAD TEST PROGRAMS ON DISCS	64
G172 ALIGN PATCH PANELS	53
L518 BENCH CHECK UHF HAVE QUICK SYSTEMS	35
L498 ALIGN UHF RTs	34
L523 BENCH CHECK VHF AM/FM RECEIVER-TRANSMITTERS	32
L499 ALIGN VERY HIGH FREQUENCY (VHF) AMPLITUDE/FREQUENCY MODULATED (AM/FM) RTs	31
H290 PERFORMANCE TEST INUs	29
H258 PERFORM CONFIDENCE TESTS ON CI TEST STATIONS	28
J381 PERFORM CONFIDENCE TESTS ON P/P TEST STATIONS	26
I320 PERFORM CONFIDENCE TESTS ON D/I TEST STATIONS	25
I321 PERFORM DIAGNOSTIC TESTS OF D/I TEST STATIONS	24
K475 PERFORMANCE TEST RADAR TRANSMITTERS	24
H265 PERFORM DIAGNOSTIC TESTS OF ELECTRONIC COMPONENT ASSEMBLIES (ECA)	24
J407 PERFORMANCE TEST ALR-69 SIGNAL PROCESSORS	24
I329 PERFORM DIAGNOSTIC TESTS OF WIDE ANGLE CONVENTIONAL (WAC) HUD/PDUs	17

TABLE 9

TASKS WHICH BEST DIFFERENTIATE BETWEEN  
DAFSC 45135/55 (F-16) AND DAFSC 45135/55 (A-10) PERSONNEL  
(PERCENT MEMBERS PERFORMING)

TASKS	F-16 45135/55 (N=53)	A-10 45135/55 (N=11)	DIFFERENCE
G171 ALIGN DISC DRIVES	72	.00	+72
G237 REMOVE OR REPLACE TEST STATION DISC DRIVES	68	.00	+68
H258 PERFORM CONFIDENCE TESTS ON CI TEST STATIONS	28	.00	+28
I321 PERFORM DIAGNOSTIC TESTS OF D/I TEST STATIONS	28	.00	+28
J381 PERFORM CONFIDENCE TESTS ON P/P TEST STATIONS	28	.00	+28
H249 ALIGN COMPUTER INERTIAL (CI) TEST STATIONS			
J421 REPAIR ALR-69 SIGNAL PROCESSORS	26	.00	+26
K448 ALIGN RADIO FREQUENCY (RF) TEST STATIONS	26	.00	+26
K476 REMOVE OR REPLACE RF TEST STATION SHOP REPLACEABLE UNITS (SRU)	26	.00	+26
I313 ALIGN DISPLAY/INDICATOR (D/I) TEST STATIONS	25	.00	+25
-----			
O633 BENCH CHECK INTERPHONE CONTROL BOXES	.00	27	-27
R763 REMOVE OR REPLACE SAS CONTROL PANEL SRUs	.00	36	-36
L521 BENCH CHECK UHF/AUTOMATIC DIRECTION FINDER (ADF) ANTENNAS	.00	45	-45
N623 OPERATIONALLY CHECK A-10 PROJECTION UNITS	.00	46	-46
M600 REPAIR A-10 INJs	.00	55	-55
N628 REPAIR A-10 TV MONITORS	.00	55	-55
M598 REPAIR A-10 CADCS	.00	64	-64
L522 BENCH CHECK VHF AM/FM CONTROL UNITS	5.66	73	-67
Q664 BENCH CHECK FLIGHT DIRECTIONAL COMPUTERS (FDC)	.00	73	-73
Q677 CALIBRATE INU USING HOT MOCK-UPS	.00	82	-82
Q706 REPAIR SAS COMPUTERS	.00	82	-82

TABLE 10  
REPRESENTATIVE TASKS PERFORMED  
BY 45135/55 (F-16) PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=53)
E135 MAKE ENTRIES ON DD FORMS 1574 (SERVICEABLE TNG-MATERIEL)	89
G209 PERFORM PERIODIC INSPECTIONS OF TEST STATIONS	81
G171 ALIGN DISC DRIVES	72
G202 PERFORM CORROSION CONTROL OF AVIONICS EQUIPMENT	68
G214 PERFORM PREVENTIVE MAINTENANCE OF F-16 DISC DRIVES	66
G240 REPAIR F-16 TEST STATION DISC DRIVES	62
G226 REBUILD CABLES	58
G221 PREPARE AVIONICS EQUIPMENT FOR TURN-IN	53
G211 PERFORM POWER-DOWN ON F-16 MOBILITY FACILITIES	45
G213 PERFORM POWER-UP ON F-16 MOBILITY FACILITIES	43
G235 REMOVE OR REPLACE TEST STATION COMPUTER COMPONENTS	40
G178 COMPLEX F-16 MOBILITY FACILITIES	36
F151 ORDER PARTS BY TELEPHONE	30
I321 PERFORM DIAGNOSTIC TESTS OF D/I TEST STATIONS	28
H258 PERFORM CONFIDENCE TESTS ON CI TEST STATIONS	28
J381 PERFORM CONFIDENCE TESTS ON P/P TEST STATIONS	28
I320 PERFORM CONFIDENCE TESTS ON D/I TEST STATIONS	26
H271 PERFORM DIAGNOSTIC TESTS OF STANDARD INERTIAL NAVIGATIONAL UNITS (INU)	26
K454 PERFORM CONFIDENCE TESTS ON RF TEST STATIONS	26
K448 ALIGN RADIO FREQUENCY (RF) TEST STATIONS	26
K461 PERFORM DIAGNOSTIC TESTS OF RADAR TRANSMITTERS	25
K474 PERFORMANCE TEST RADAR ANTENNAS	25
I313 ALIGN DISPLAY/INDICATOR (D/I) TEST STATIONS	25
J432 REPAIR P/P TEST STATIONS	25

TABLE 11

REPRESENTATIVE TASKS PERFORMED  
BY 45135/55 (A-10) PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=11)
E128 MAKE ENTRIES ON AFTO FORMS 350 (REPARABLE ITEM PROCESSING TAG)	100
G206 PERFORM FUNCTIONAL CHECKS OF LINE REPLACEABLE UNITS (LRU) ISSUED FROM SUPPLY	91
F159 RESEARCH MICROFICHE FOR PART INFORMATION	82
Q672 BENCH CHECK INERTIAL NAVIGATION UNITS (INU) USING HOT MOCK-UPS	82
L518 BENCH CHECK UHF HAVE QUICK SYSTEMS	73
L560 REPAIR UHF RTs	73
Q664 BENCH CHECK FLIGHT DIRECTIONAL COMPUTERS (FDC)	73
Q205 PERFORM FOREIGN OBJECT DAMAGE (FOD) PREVENTION WALKS	73
L544 PERFORM FAULT ISOLATION TESTS ON TACAN RTs	73
Q665 BENCH CHECK FUEL QUANTITY INDICATORS	64
F160 RESEARCH TECHNICAL DATA FOR PART NUMBERS	64
Q703 REPAIR INU USING HOT MOCK-UPS	64
L512 BENCH CHECK TACAN CONTROL BOXES	64
M602 REPAIR CDUs	64
N617 ALIGN A-10 TV MONITORS	64
M598 REPAIR A-10 CADCs	64
Q662 BENCH CHECK ATTITUDE DISPLACEMENT INDICATORS (ADI)	64
Q661 BENCH CHECK ALTIMETERS	64
N625 OPERATIONALLY CHECK A-10 TV MONITORS	64
L565 REPAIR VHF SYSTEMS (AN/ARC-186)	55
L545 PRESET FREQUENCIES IN UHF LRUs	55
L527 ISOLATE MALFUNCTIONS IN IFF RTs	55

DAFSC 45175. Seven-skill level personnel, representing 39 percent of the survey sample, perform an average of 123 tasks. Even though 76 percent of the group report supervisory responsibilities, only 39 percent of their relative job time is spent on tasks in the usual supervisory, managerial, and training duties (see Table 6). This relatively low supervisory activity is further highlighted by the fact that only 42 percent of the 212 people forming this group are found in the SUPERVISORY, MANAGERIAL, and ADMINISTRATIVE CLUSTER discussed earlier in the SPECIALTY JOBS section (the 1 job that was predominantly supervisory in nature). The balance of the group's population, as was the case with the 3- and 5-skill level group, are spread across the wide range of technical jobs identified in the SPECIALTY JOBS section (see Table 5). While the display of tasks in Table 12 clearly shows these personnel are responsible for supervision, it also reflects the range and scope of the job, in that relatively high percentages of the group are also performing such basic technical tasks as researching microfiche for part information and performing periodic inspections of test stations.

### Summary

Distinctions between skill level groups are evident, with personnel at the 3- and 5-skill levels spending the vast majority of their job time performing limited numbers of primarily technical tasks across a number of distinctly different jobs. At the 7-skill level, although members still spend over half of their relative duty time on nonsupervisory tasks, a shift toward supervisory functions is quite clear. The low numbers of tasks performed by 50 percent or more of the 3-/5-skill level group and the 7-skill level group suggest a very diverse career ladder.

## ANALYSIS OF AFR 39-1 SPECIALTY DESCRIPTIONS

Survey data were compared to the AFR 39-1 Specialty Descriptions for F-16/A-10 Avionics Test Station and Component Specialist and Technician, both dated 1 February 1988. These descriptions are intended to give a broad overview of the duties and tasks performed in each skill level of the specialty.

The descriptions for the 3-, 5-, and 7-skill levels were well supported by findings of this survey. The descriptions depict the highly technical aspect of the job, as well as the increase in supervisory responsibilities previously described in the DAFSC analysis.

## TRAINING ANALYSIS

Occupational survey data are one of the many sources of information which can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment. Factors which may be used in evaluating training include the overall description of the job being performed

TABLE 12  
REPRESENTATIVE TASKS PERFORMED  
BY 45175 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=212)
E135 MAKE ENTRIES ON DD FORMS 1574 (SERVICEABLE TAG-MATERIEL)	73
C85 WRITE APRs	72
E138 MAKE ENTRIES ON DD FORMS 1577-2 (UNSERVICEABLE (REPARABLE) TAG MATERIEL)	69
A5 DETERMINE WORK PRIORITIES	69
B30 COUNSEL PERSONNEL	67
F159 RESEARCH MICROFICHE FOR PART INFORMATION	67
A16 PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	63
B48 SUPERVISE INTEGRATED F-16/A-10 AVIONICS TEST STATION AND COMPONENT SPECIALISTS (AFSC 45155)	60
D89 CONDUCT OJT	58
G186 INSPECT EQUIPMENT FOR CURRENT CALIBRATION DATES	57
D92 COUNSEL TRAINEES ON TRAINING PROGRESS	52
A22 PLAN WORK ASSIGNMENTS	49
A14 ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	49
A3 COORDINATE JOB REQUIREMENTS WITH OTHER SECTIONS	48
B49 SUPERVISE INTEGRATED F-16/A-10 AVIONICS TEST STATION AND COMPONENT TECHNICIANS (AFSC 45175)	47
F155 PREPARE QUALITY/MATERIAL DEFICIENCY REPORTS	46
C59 EVALUATE BUDGET OR FINANCIAL REQUIREMENTS	46
G209 PERFORM PERIODIC INSPECTIONS OF TEST STATIONS	44
C52 ANALYZE WORKLOAD REQUIREMENTS	43
A26 SCHEDULE TEMPORARY DUTY, LEAVES, OR PASSES	43
A10 DEVELOP WORK METHODS OR PROCEDURES	42
B40 IMPLEMENT SELF-INSPECTION PROGRAMS	41
D93 DETERMINE OJT REQUIREMENTS	41

by first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-job (1-24 month TAFMS) or first-enlistment (1-48 months TAFMS) members performing specific tasks or using certain equipment or materials, as well as training emphasis and task difficulty ratings (previously explained in the SURVEY METHODOLOGY section). Additionally, another source of information is a Training Requirements Analysis (TRA) which is being accomplished for this AFSC by the Training Development Services Division (OMT) of USAFOMC.

To assist specifically in the evaluation of the Specialty Training Standard (STS) and the Plan of Instruction (POI), technical school personnel from Lowry Technical Training Center matched job inventory tasks to appropriate sections and subsections of the STS and two POIs for courses G3ABR45135 001 and G3ABR45135 002. It was this matching upon which comparison to those documents was based. In addition, due to the diversity of this career ladder, distinct aircraft populations (pure F-16 or A-10 personnel) were used to compare percent member performing to the STS and POI documents. Any other approach (combined population) would skew the findings and result in faulty decisionmaking regarding the training needs for this career ladder. A complete computer listing displaying F-16 and A-10 percent members performing tasks, training emphasis and task difficulty ratings for each task, along with the STS and POI matchings, has been forwarded to the technical school for their use in further detailed reviews of training documents. A summary of this information is presented below.

#### First-Enlistment Personnel

In this study, there are 114 members in their first enlistment (1-48 months TAFMS), representing over 21 percent of the total survey sample. The job performed by these personnel is highly technical in nature, accounting for approximately 98 percent of their relative duty time (see Table 13). While Table 13 shows that first-term airmen spend some of their job time in a variety of career ladder functional areas, the majority is concentrated on general maintenance, mock-ups and manually tested equipment, CI test stations, displays/indicators, processors/pneumatics, and associated general administrative functions. Distribution of these personnel in the career ladder jobs is displayed in Figure 2, which clearly shows group members dispersed across a number of the larger groups identified in the SPECIALTY JOBS analysis. Table 14 displays some of the average 102 tasks performed by the group, and, by virtue of the relatively low percentage performing any given task (other than general tasks), also reflects the diversity of the career field.

One of the objectives of this survey project was to gather data for the technical training center pertaining to equipment used or operated. Accordingly, Table 15 presents percentages of first-term airmen responding to equipment used or operated. This type of information is useful for both the technical school and MAJCOM training personnel to assist them in focusing limited training time or other resources on the most appropriate subject areas.

TABLE 13

RELATIVE TIME SPENT ON DUTIES  
BY FIRST-ENLISTMENT PERSONNEL

DUTIES	1-48 MOS TAFMS (N=114)
A ORGANIZING AND PLANNING	1
B DIRECTING AND IMPLEMENTING	*
C INSPECTING AND EVALUATING	*
D TRAINING	*
E MAKING ENTRIES ON FORMS AND RECORDS	10
F PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	5
G PERFORMING GENERAL MAINTENANCE	19
H MAINTAINING COMPUTER INERTIAL (CI) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	12
I MAINTAINING DISPLAYS/INDICATORS (D/I) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	11
J MAINTAINING PROCESSORS/PNEUMATICS (P/P) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	10
K MAINTAINING RADIO FREQUENCY (RF) TEST STATIONS AND ASSOCIATED LINE REPLACEABLE UNITS (LRU)	9
L MAINTAINING MOCK-UPS AND MANUALLY TESTED EQUIPMENT	13
M MAINTAINING A-10 INERTIAL NAVIGATIONAL SYSTEMS (INS), INTERMEDIATE AUTOMATIC TEST STATIONS, AND ASSOCIATED LRUs	3
N MAINTAINING A-10 WEAPONS CONTROL SYSTEMS (WCS)	1
O MAINTAINING INTERPHONE SYSTEMS, COCKPIT RECORDERS, SECURE VOICE SYSTEMS	*
P MAINTAINING SATELLITE RECEIVER TIMING SYSTEMS	*
Q MAINTAINING INERTIAL NAVIGATION UNITS (INU), FLIGHT INSTRUMENTS, AND QUANTITY INDICATING LRUs	4
R MAINTAINING A-10 SUPPORT EQUIPMENT	1



# DISTRIBUTION OF FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY JOBS (N= 114)

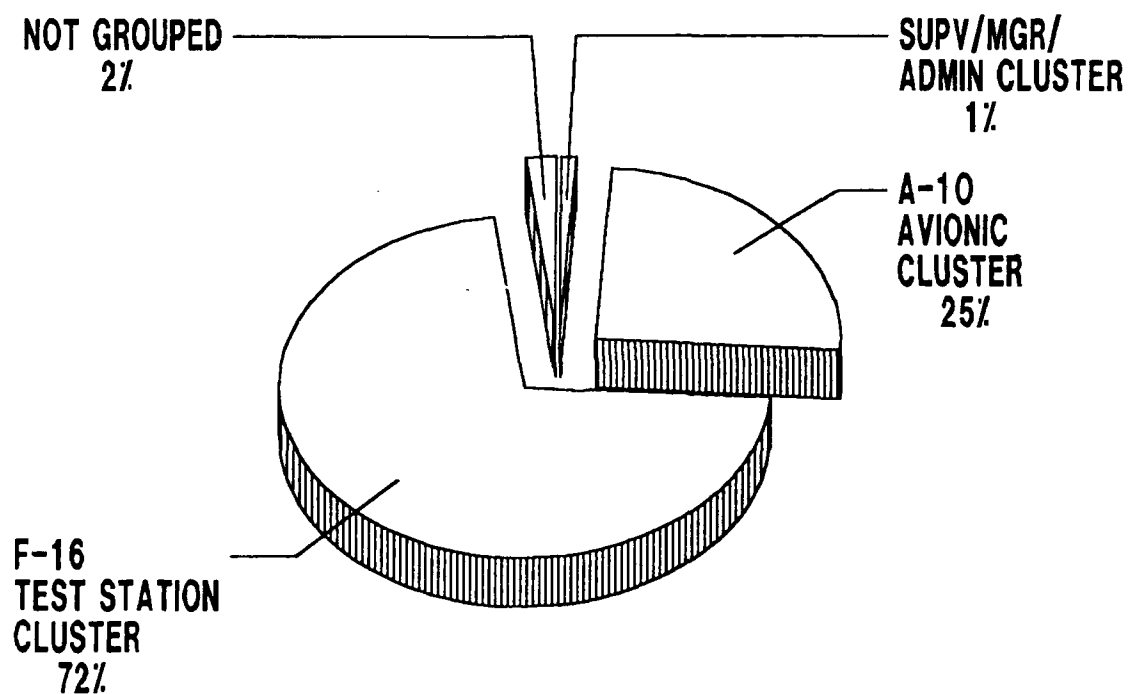


FIGURE 2

TABLE 14  
REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT  
AFSC 451X5 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=114)
E135 MAKE ENTRIES ON DD FORMS 1574 (SERVICEABLE TAG-MATERIEL)	85
E128 MAKE ENTRIES ON AFTO FORMS 350 (REPARABLE ITEM PROCESSING TAG)	85
G229 REMOVE OR REPLACE SOLDERED CONNECTORS	76
G226 REBUILD CABLES	57
G186 INSPECT EQUIPMENT FOR CURRENT CALIBRATION DATES	56
G172 ALIGN PATCH PANELS	53
G221 PREPARE AVIONICS EQUIPMENT FOR TURN-IN	50
G218 PERFORM TCTO INSPECTIONS OR MODIFICATIONS OF LRU	49
G185 INSPECT COMMON SUPPORT EQUIPMENT	41
L563 REPAIR VHF AM/FM RTs	31
L523 BENCH CHECK VHF AM/FM RECEIVER-TRANSMITTERS	31
L519 BENCH CHECK UHF RECEIVER-TRANSMITTERS	30
L498 ALIGN UHF RTs	29
L538 ISOLATE MALFUNCTIONS IN VHF RTs	25
H258 PERFORM CONFIDENCE TESTS ON CI TEST STATIONS	25
H266 PERFORM DIAGNOSTIC TESTS OF FCCs, EFCCs, OR XFCCs	24
H278 PERFORM ITA WRAPAROUND TESTS OF INS ITAs	24
I320 PERFORM CONFIDENCE TESTS ON D/I TEST STATIONS	23
K472 PERFORMANCE TEST IFF/RTs	23
Q706 REPAIR SAS COMPUTERS	22
K454 PERFORM CONFIDENCE TESTS ON RF TEST STATIONS	21
K462 PERFORM DIAGNOSTIC TESTS OF RF TEST STATIONS	21
I348 PERFORMANCE TEST WAC HUD/EUs	20
J381 PERFORM CONFIDENCE TESTS ON P/P TEST STATIONS	20
I334 PERFORM ITA WRAPAROUND TESTS OF PDG OR EPDG ITAs	19

TABLE 15  
EQUIPMENT USED OR OPERATED BY  
FIRST-ENLISTMENT PERSONNEL IN PRESENT JOB  
(1-48 MONTHS TAFMS)

<u>EQUIPMENT</u>	<u>PERCENT MEMBERS RESPONDING (N=114)</u>
Multimeters	96
Soldering/Desoldering Tools	96
Oscilloscopes	91
Torque Wrenches	83
Signal Generators	78
Connector Repair Kits	72
Power Measuring Devices	68
Disc Drive Alignment	66
Dummy Loads	60
Compressed Gas Bottles	58
400 Hz Frequency Converters	51
Electronic Counters	50
Pulse Generators	50
Spectrum Analyzer	48
Voltage and Current Standard Devices	48
Theodolites	46
Decade Resistors	39
Pressure Regulators	39
Boresight Reference Tools	32
Auxiliary Power Generator	30
28 VDC Converters	29
Environmental Control Units	27
North Seeking Gyro Test Sets	27
Portable Automated Test Equipment Calibrators (PATEC)	23
Synchro Standards	22
Microwave Pulse Counters	18
Powered Maintenance Support Equipment	14
Synchro Bridges	3
Battery Chargers	2

### Training Emphasis and Task Difficulty Data

Training emphasis (TE) and task difficulty (TD) data are secondary factors that can assist technical school personnel in deciding what tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank-ordering of those tasks in the job inventory considered important for first-term airman training (TE) (see Tables 16 and 17 for the top rated tasks for each aircraft), along with a measure of the difficulty of the job inventory tasks (TD) (see the highest rated tasks presented in Tables 18 and 19). When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can then be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors, accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-term personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, USAFOMC has developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task into a computed value identified as an Automated Training Indicator (ATI). These ATI values correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 1, ATCR 52-22. These values allow course personnel to quickly focus their attention on those tasks which are most likely to qualify for ABR course consideration.

Various lists of tasks, accompanied by TE and TD ratings, are contained in the TRAINING EXTRACT package and should be reviewed in detail by technical school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the SURVEY METHODOLOGY section of this report.)

### Specialty Training Standard (STS)

A comprehensive review of STS 451X5, dated March 1989, compared STS items to survey data (based on the previously mentioned assistance from technical school personnel in matching job inventory tasks to STS elements). STS paragraphs containing general knowledge information, subject-matter-knowledge only requirements, or basic supervisory responsibilities were not examined. Task knowledge and performance elements of the STS were compared against the standard set forth in AFR 8-13 (dated 1 August 1986) and AFR 8-13/ATC Supplement 1 (dated 2 March 1987), Attachment 1, paragraph A1-3c(4) (i.e., include tasks performed or knowledge required by 20 percent or more of the personnel in a skill level (criterion group) of the AFS). However, to truly assess the training needs for this diverse career ladder, the standard just mentioned was applied to 20 percent or more of the personnel within each aircraft group.

TABLE 16

## F-16 TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)

TASKS	TNG EMP*	F-16 PERCENT MEMBERS PERFORMING			TSK DIF**
		1ST JOB (N=39)	1ST ENL (N=82)		
G171 ALIGN DISC DRIVES	6.04	69	70		6.86
G209 PERFORM PERIODIC INSPECTIONS OF TEST STATIONS	5.61	82	83		4.29
G230 REMOVE OR REPLACE SOLDERLESS PINS OR CONNECTORS	5.27	59	62		4.41
G240 REPAIR F-16 TEST STATION DISC DRIVES	5.24	64	66		6.88
E128 MAKE ENTRIES ON AFTO FORMS 350 (REPARABLE ITEM PROCESSING TAG)					
G192 LOAD TEST PROGRAMS ON DISCS	5.18	90	84		3.24
G214 PERFORM PREVENTIVE MAINTENANCE OF F-16 DISC DRIVES	5.16	59	68		4.11
F160 RESEARCH TECHNICAL DATA FOR PART NUMBERS	5.08	64	72		5.03
E135 MAKE ENTRIES ON DD FORMS 1574 (SERVICEABLE TAG-MATERIEL)	4.96	69	66		3.18
K453 CALIBRATE RF TEST STATIONS	4.84	92	88		2.56
G229 REMOVE OR REPLACE SOLDERED CONNECTORS	4.78	21	24		6.70
H249 ALIGN COMPUTER INERTIAL (CI) TEST STATIONS	4.75	74	76		4.67
G248 UPDATE SOFTWARE	4.75	26	30		3.34
K448 ALIGN RADIO FREQUENCY (RF) TEST STATIONS	4.73	28	45		4.68
E116 MAKE ENTRIES ON AF FORMS 2005 (ISSUE/TURN IN REQUEST)	4.73	26	29		6.44
	4.71	82	77		3.12

\* F-16 TE Mean = 1.67 SD = 1.40 (High TE = 3.07)

\*\* TD Mean = 5.00 SD = 1.00

TABLE 17

## A-10 TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)

TASKS	TNG EMP*	A-10 PERCENT MEMBERS PERFORMING		TSK DIF**
		1ST JOB (N=11)	1ST ENL (N=23)	
N615 ALIGN A-10 PROJECTION UNITS (PU)	6.11	27	48	6.61
M593 PERFORM IATS CONFIDENCE TESTING (CNF)	5.95	27	48	4.86
G594 PERFORM IATS INTERNAL SELF TESTS (IST)	5.95	36	52	4.92
E127 MAKE ENTRIES ON AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	5.74	73	70	3.56
Q706 REPAIR SAS COMPUTERS	5.74	73	83	6.34
E128 MAKE ENTRIES ON AFTO FORMS 350 (REPARABLE ITEM PROCESSING TAG)	5.68	91	91	3.24
Q672 BENCH CHECK INERTIAL NAVIGATION UNITS (INU) USING HOT MOCK-UPS	5.58	73	65	6.01
Q677 CALIBRATE INU USING HOT MOCK-UPS	5.58	73	65	5.44
N623 OPERATIONALLY CHECK A-10 PROJECTION UNITS	5.47	36	48	5.64
Q668 BENCH CHECK HARS ELECTRONIC CONTROL AMPLIFIERS	5.47	45	61	5.89
Q229 REMOVE OR REPLACE SOLDERED CONNECTORS	5.42	82	74	4.67
Q703 REPAIR INU USING HOT MOCK-UPS	5.37	55	57	6.24
N617 ALIGN A-10 TV MONITORS	5.32	55	61	5.89
Q707 REPAIR SAS CONTROL PANELS	5.32	64	74	5.46
M602 REPAIR CDUs	5.21	55	65	5.64

\* A-10 TE Mean = 1.70 SD = 1.50 (High TE = 3.19)

\*\* TD Mean = 5.00 S.D. = 1.00

TABLE 18

F-16 TASKS RATED HIGHEST IN TASK DIFFICULTY (TD)

TASKS	TASK DIFF	F-16 PERCENT MEMBERS PERFORMING		
		1ST ENL (N=82)	DAFSC 45155 (N=172)	DAFSC 45175 (N=133)
G11 DRAFT BUDGET OR FINANCIAL REQUIREMENTS	7.30	1	1	8
C86 WRITE CIVILIAN PERFORMANCE RATINGS OR SUPERVISORY APPRAISALS	7.15	0	0	4
G183 IDENTIFY DEFICIENCIES IN ATLAS PROGRAMS	7.05	35	54	47
G178 COMPLEX F-16 MOBILITY FACILITIES	6.99	33	44	30
G240 REPAIR F-16 TEST STATION DISC DRIVES	6.88	66	70	48
G171 ALIGN DISC DRIVES	6.86	70	75	49
I372 SET UP, ALIGN, AND CALIBRATE PHOTOMETRIC BENCHES	6.85	28	26	23
G180 DECOMPLEX F-16 MOBILITY FACILITIES	6.83	26	37	24
H312 SET UP AND ALIGN INU PEDESTALS	6.78	16	28	26
D95 DEVELOP RESIDENT COURSE OR CAREER DEVELOPMENT COURSE (CDC) CURRICULUM MATERIALS	6.76	0	1	4
K489 REPAIR RF TEST STATION TRUS	6.72	22	31	16
C87 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS	6.72	0	1	17
K453 CALIBRATE RF TEST STATIONS	6.70	24	33	21
A7 DEVELOP MOBILITY PLANS	6.62	0	1	15
C85 WRITE APRs	6.58	1	30	79

TD Mean = 5.00 SD = 1.00

TABLE 19

## A-10 TASKS RATED HIGHEST IN TASK DIFFICULTY (TD)

TASKS	TASK DIFF	A-10 PERCENT MEMBERS PERFORMING			
		1ST ENL (N=23)	DAFSC 45155 (N=59)	DAFSC 45175 (N=35)	
Q691 ISOLATE MALFUNCTIONS IN NAV MODE RELAY BOXES	7.65	39	44	43	
A11 DRAFT BUDGET OR FINANCIAL REQUIREMENTS	7.30	0	3	23	
M587 ISOLATE MALFUNCTIONS IN SYSTEM SOFTWARE OF INTERMEDIATE AUTOMATIC TEST STATION (IATS) TESTER REPLACEABLE UNITS	7.21	22	36	40	
C86 WRITE CIVILIAN PERFORMANCE RATINGS OR SUPERVISORY APPRAISALS	7.15	0	0	11	
Q690 ISOLATE MALFUNCTIONS IN AVIONICS RELAY BOXES	7.14	30	41	49	
R716 CALIBRATE HEADING ATTITUDE REFERENCE SYSTEM (HARS) TEST SETS	7.10	22	31	37	
G183 IDENTIFY DEFICIENCIES IN ATLAS PROGRAMS	7.05	4	20	20	
Q704 REPAIR NAV MODE RELAY BOXES	6.98	52	42	34	
M585 ANALYZE SYSTEM SOFTWARE FOR FAULT ISOLATION OF TEMS EPUS	6.97	13	17	26	
M574 ANALYZE SYSTEM SOFTWARE FOR FAULT ISOLATION OF COMPUTER SYMBOL GENERATOR (CSG)	6.95	26	46	31	
R712 CALIBRATE AN/ASM 184B WEAPONS CONTROL TEST SETS	6.91	13	20	20	
R739 ISOLATE MALFUNCTIONS IN HARS TEST SETS	6.91	9	29	43	
M584 ANALYZE SYSTEM SOFTWARE FOR FAULT ISOLATION OF TEMS DDU	6.91	13	15	23	
M586 ANALYZE SYSTEM SOFTWARE FOR FAULT ISOLATION OF TURBINE ENGINE					

TD Mean = 5.00 SD = 1.00



Using this criterion, a substantial portion of the STS was found to be unsupported by occupational survey data. The number of STS paragraphs or subparagraphs that did not meet the minimum 20 percent members performing criterion were too numerous to discuss in detail. However, a few selected samples are presented in Tables 20-23 to display the scope of the problem. Some rather significant functional areas of the career ladder are involved.

The large number of unsupported STS elements is largely due to the diversity of the career ladder. When an AFS population is spread across a large number of distinctly different jobs, very few tasks are performed in common across those jobs. For example, in this AFS, based on task performance responses, the job done by airmen working on an F-16 D/I test station has virtually nothing in common with the job performed by respondents working on A-10 manually tested equipment.

Tasks not matched to any element of the STS are listed at the end of the STS computer listing. These were reviewed to determine if there were any tasks concentrated around any particular functions or jobs. No particular trends were noted. Examples of technical tasks performed by 20 percent or more respondents of the STS target groups, but which were not referenced to any STS element, are displayed in Tables 24 and 25 by aircraft group. Training personnel and subject-matter experts should review these and other eligible unreferenced tasks to determine if inclusion in the STS is justified.

#### Plan of Instruction (POI)

Based on the previously mentioned assistance from the technical school subject-matter experts, inventory tasks were matched to the following POIs:

- Tentative POI G3ABR45135 002, Apprentice F-16/A-10 Avionics Test Station and Component Specialty, dated 30 March 1989. (Formal training course for this AFS)
- POI G3ABR45135 001, Apprentice F-16 A/B Avionics Test Station and Component Specialty, dated 7 March 1989. (Guard/Reserve course, POI match requested by training personnel)

The results of the matching process are displayed in a computer generated product. Information furnished for consideration includes separate F-16 and A-10 percent members performing data for first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) personnel, as well as training emphasis (TE) and task difficulty (TD) ratings for individual tasks.

POI blocks, units of instruction, and criterion objectives were compared against the standard set forth in Attachment 1, ATCR 52-22, dated 17 February 1989 (30 percent or more of the criterion first-enlistment group performing tasks trained, along with sufficiently high TE and TD ratings on those tasks). (Note: For this diverse AFS, the criterion first-enlistment

TABLE 20

F-16  
SAMPLES OF STS ELEMENTS REQUIRING REVIEW  
(Less Than 20 Percent Members Performing)

STS ITEM (With Selected Matched Tasks)	PERCENT MEMBERS PERFORMING						
	F16 1ST JOB	F16 1ST ENL	F16 5- LVL	F16 7- LVL	F16 TE*	TOT TD**	
13a (2) (b). Repair							
Q702 Repair ILS receivers	0	0	0	0	.33	5.24	
13a (3) (a). Perform Maintenance Testing							
Q670 Bench check ILS control units	0	0	0	0	.31	4.73	
21c (1) (a). Perform Wraparound Testing							
I333 Perform ITA wraparound tests of HUD/PDU ITAs	10	16	15	17	2.39	3.45	
34c (3) (c). Repair							
I366 Repair REO/IU ITAs	0	7	11	15	2.18	4.85	

\* F-16 TE Mean = 1.67 SD = 1.40 (High TE = 3.07)

\*\* Average TD rating is 5.00

TABLE 21

F-16  
SAMPLES OF STS ELEMENTS REQUIRING REVIEW  
(Questionable Proficiency Codes)

STS ITEM (With Selected Matched Tasks)	3-LVL PROF CODE	PERCENT MEMBERS PERFORMING					F16 7- LVL	F16 IE*	TOT TD**
		F16 1ST JOB	F16 1ST ENL	F16 5- LVL	F16 7- LVL				
23d (12) (c). Perform Maintenance Testing	2b								
J408 Performance Test CADCs		23	24	34	20	3.39	4.41		
24d (2) (d). Troubleshoot	-								
K459 Perform diagnostic tests of low power radio frequencies (LPRF) or modular LPRF (MLPRF)		28	30	37	17	2.43	5.00		
25d (2). EPROM Programmer/Verifier	2b								
G204 Perform diagnostic tests of EPVs		8	7	22	17	2.80	4.83		
34c (9) (a). Perform Wraparound Testing	2b								
I338 Perform ITA wraparound tests of WAC HUD/PDUS		21	27	25	18	2.59	3.55		

\* F-16 TE Mean = 1.67 SD = 1.40 (High TE = 3.07)

\*\* Average TD rating is 5.00

TABLE 22

A-10  
SAMPLES OF STS ELEMENTS REQUIRING REVIEW  
(Less Than 20 Percent Members Performing)

STS ITEM (With Selected Matched Tasks)	PERCENT MEMBERS PERFORMING					
	A10 1ST JOB	A10 1ST ENL	A10 5- LVL	A10 7- LVL	A10 IE*	TOT ID**
10e (1). Service Reports						
F156 Prepare service report software (SRS)	0	0	2	11	.84	5.07
10e (4). Software Deficiency Reports						
F153 Prepare intermediate test-void (software) reports	0	0	3	14	.95	5.16
G225 Prepare recommended changes for test station software	0	0	5	14	.32	5.85
39b (2). Use MAC to update software						
G248 Update software	0	0	10	17	1.26	4.68
43b (3). Perform maintenance testing of Vertical Velocity Indicator						
Q676 Bench check vertical velocity indicators (VVI)	9	9	5	3	.95	5.01
Q689 Inspect VVIs	0	9	5	3	1.05	4.46

\* A-10 TE Mean = 1.70 SD = 1.50 (High TE = 3.19)

\*\* Average TD rating is 5.00

TABLE 23

A-10  
SAMPLES OF STS ELEMENTS REQUIRING REVIEW  
(Questionable Proficiency Codes)

STS ITEM (With Selected Matched Tasks)	PERCENT MEMBERS PERFORMING						
	3-LVL PROF CODE	A10 1ST JOB	A10 1ST ENL	A10 5- LVL	A10 7- LVL	A10 IE*	TOT TD**
13a (2) (a). Perform Maintenance Testing	-						
Q671 Bench check ILS receivers		64	70	59	51	4.00	5.43
13a (2) (b). Repair	-						
Q702 Repair ILS receivers		64	65	54	51	3.84	5.24
43e (3) (b). Repair	-						
Q699 Repair HARS electronic control amplifiers		36	52	59	49	5.05	5.56
Q700 Repair HARS LRUs		18	35	54	46	5.11	5.84
43f (2). Perform Maintenance Testing	-						
Q664 Bench check flight directional computers (FDC)		64	70	63	43	4.74	5.54
Q681 Inspect FDC LRUs		18	30	46	40	3.37	4.50

\* A-10 TE Mean = 1.70 SD = 1.50 (High TE = 3.19)

\*\* Average TD rating is 5.00

TABLE 24

F-16  
EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE  
GROUP MEMBERS AND NOT REFERENCED TO THE STS

TASKS	PERCENT MEMBERS PERFORMING					
	F16 1ST JOB	F16 1ST ENL	F16 5- LVL	F16 7- LVL	F16 TE*	TOT TD**
G226 REBUILD CABLES	56	60	55	42	4.65	5.45
E133 MAKE ENTRIES ON DD FORMS 1348 (DOD SINGLE LINE ITEM REQUISITION SYSTEM DOCUMENT)	41	38	38	51	2.00	3.11
G186 INSPECT EQUIPMENT FOR CURRENT CALIBRATION DATES	56	59	65	63	3.78	2.44
G183 IDENTIFY DEFICIENCIES IN ATLAS PROGRAMS	31	35	54	47	4.14	7.05
G243 REPAIR PATCH PANELS	38	40	49	32	3.31	4.77
I354 REPAIR D/I TEST STATION SRUs	15	22	23	23	2.73	5.55
H259 PERFORM DIAGNOSTIC TESTING OF DATA ENTRY DISPLAYS (DED)	13	22	27	19	2.88	3.76

\* F-16 TE Mean = 1.67 SD = 1.40 (High TE = 3.07)

\*\* Average TD rating is 5.00

TABLE 25

A-10  
EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE  
GROUP MEMBERS AND NOT REFERENCED TO THE STS

TASKS	PERCENT MEMBERS PERFORMING					
	A10 1ST JOB	A10 1ST ENL	A10 5- LVL	A10 7- LVL	A10 TE*	TOT TD**
M602 REPAIR CDUs	55	65	75	49	5.21	5.64
Q672 BENCH CHECK INERTIAL NAVIGATION UNITS (INU) USING HOT MOCK-UPS	73	65	61	34	5.58	6.01
Q677 CALIBRATE INU USING HOT MOCK-UPS	73	65	61	34	5.58	5.44
L497 ALIGN UHF CONTROL UNITS	36	43	34	31	2.79	4.78
L529 ISOLATE MALFUNCTIONS IN UHF CONTROL BOXES	45	48	32	34	2.79	4.79
L556 REPAIR RADIO SELECT PANELS	45	35	15	9	1.68	4.56
Q657 ALIGN FUEL QUANTITY INTERMEDIATE DEVICES	27	43	68	49	4.68	4.94

\* A-10 TE Mean = 1.70 SD = 1.50 (High TE = 3.19)

\*\* Average TD rating is 5.00

group for each aircraft was compared against the set standard.) Per this guidance, tasks trained in the course which do not meet these criteria should be considered for elimination from the formal course if not justified on some other acceptable basis.

Even though the POIs are basically theory-centered courses, a review of the tasks matched to both POIs reveal that only a limited number of POI units of instruction or criterion objectives are supported by OSR data for matched tasks. Examples of some of the units of instruction and criterion objectives with matched tasks which were not supported by OSR data are presented in Tables 26 and 27 for POI 001 and POI 002, respectively.

Based on these examples, it is evident that a fair portion of these formal courses are not supported by the various OSR data elements which reflect responses from personnel working in the career ladder. Training personnel are encouraged to review the computer printouts of both POIs matched with survey data as they undertake future revisions, if any, of POI 001 or POI 002.

#### ELECTRONIC PRINCIPLES

The Electronics Fundamentals paragraph of the STS and the electronic principles taught in the basic course can be examined using data from the Electronics Principle Inventory (EPI). The EPI is a knowledge-based inventory containing 1,366 questions in 63 electronics-related subject areas. It identifies the range of EPs personnel must understand to perform any electronics-related job.

Table 28 lists the 17 electronic areas where 50 percent or more AFSC 451X5 airmen responded "yes" to performing these functions in their job. These data, as well as the complete data package for Lowry AFB AFSCs, can be useful to subject-matter experts when evaluating those portions of the STS and POI concerning electronic fundamentals or principles.

#### JOB SATISFACTION ANALYSIS

An important part of analysis within any OSR involves the job satisfaction of members and how their responses compare with the responses of members of similar Air Force specialties. Table 29 presents the job satisfaction data for the AFSC 451X5 respondents, broken down into three groups (first-enlistment, second enlistment, and career). A comparative sample of mission equipment maintenance personnel surveyed by USAF Occupational Measurement Center during 1989 also appear in Table 29. These career fields included AFSCs 362X4, 411X2A, 451X4, and 454X0A/B. Reported job interest, perceived utilization of talents and training, satisfaction with sense of accomplishment gained from jobs, and expressed reenlistment intentions for AFSC 451X5 specialty jobs are presented in Table 30.



TABLE 26

EXAMPLES OF POI 001 BLOCKS REFLECTING LOW FIRST-ENLISTMENT TASK PERFORMANCE  
(Less Than 30 Percent Responding)

POI REFERENCE BLOCK	UNIT	HOURS	SELECTED SAMPLE TASKS	PERCENT				
				MEMBERS PERFORMING		F-16 TE*	TOT TD**	
				F-16 1ST JOB	F-16 1ST ENL			
III	4a-c	16:00	L518 Bench check UHF HAVE Quick systems	21	16	3.37	5.71	
			L520 Bench check UHF system (AM/ARC-164)	8	7	2.69	5.27	
			L545 Preset frequencies in UHF LRUs	18	13	1.90	3.95	
XII	4a	15:00	I372 Set up, align, and calibrate photometric benches	18	28	4.71	6.85	
			I332 Perform ITA wraparound tests of HUD/EU ITAs	13	20	2.39	3.44	
			I336 Perform ITA wraparound tests of RED/IU ITAs	10	13	2.20	3.45	
			I342 Performance test HUD/EUs	10	15	2.47	4.08	
			I347 Performance test RED/IUs	13	15	2.35	4.52	

\* F-16 TE Mean = 1.67 SD = 1.40 (High TE = 3.07)

\*\* Average TD rating is 5.00

TABLE 27

EXAMPLES OF POI 002 BLOCKS REFLECTING LOW FIRST-ENLISTMENT TASK PERFORMANCE  
(Less Than 30 Percent Responding)

POI REFERENCE BLOCK	UNIT	HOURS	SELECTED SAMPLE TASKS	F-16 PERCENT			
				MEMBERS PERFORMING			TOT ID*
				F-16 1ST JOB	F-16 1ST ENL	F-16 TE**	
XI	3a-d	10:00	I338 Perform ITA wraparound tests of WAC HUD/PDUs	21	27	2.59	3.55
			I349 Performance test WAC HUD/PDUs	21	27	3.27	4.63
			I372 Set up, align, and calibrate photometric benches	18	28	4.71	6.85
			I344 Performance test MFD units	18	23	3.04	4.34
XI	5c-d		J396 Perform ITA wraparound tests of ALR-69 signal processor/TLC ITAs	26	23	3.14	3.78
			J407 Performance test ALR-69 signal processors	23	23	3.49	4.20
POI Reference Block	Unit	Hours	Selected Sample Tasks	A-10 PERCENT			
				MEMBERS PERFORMING			TOT TE***
				A-10 1ST JOB	A-10 1ST ENL	A-10 TE***	
XIII	7b-f	12:00	G248 Update software	0	0	1.26	4.68
			M588 Perform diagnostic testing of computer terminals	9	17	3.95	6.14
			M589 Perform diagnostic testing of disk drive systems	9	17	4.00	6.26
			M590 Perform diagnostic testing of thermal printers	0	9	3.42	5.59
			M591 Perform diagnostic testing of I630 computers	9	17	4.00	6.01

\* Average TD rating is 5.00

\*\* F-16 TE Mean = 1.67 SD = 1.40 (High TE = 3.07)

\*\*\* A-10 TE Mean = 1.70 SD = 1.50 (High TE = 3.19)

TABLE 28

ELECTRONIC PRINCIPLES USED BY FIFTY PERCENT  
OR MORE OF AFSC 451X5 PERSONNEL

COMPUTERS

DIGITAL ANALOG (D/A) AND ANALOG TO DIGITAL (A/D)

DIGITAL LOGIC NUMBERING SYSTEMS AND FUNCTIONS

DIRECT/ALTERNATING CURRENT

ELECTRO/MECHANICAL DEVICES

MULTIMETERS

OSCILLOSCOPES

POWER SUPPLY CIRCUITS

POWER SUPPLY VOLTAGE REGULATORS

RF MEASUREMENTS

SIGNAL GENERATORS

SOLDERING OR SOLDERLESS CONNECTIONS

SOLID STATE CIRCUITS AND DEVICES

TEST EQUIPMENT TYPES

TRANSISTOR AMPLIFIER CIRCUITS

TRANSMITTERS AND RECEIVERS

TUBES

TABLE 29

COMPARISON OF JOB SATISFACTION INDICATORS FOR 451X5  
TAFMS GROUPS IN CURRENT STUDY TO A COMPARATIVE SAMPLE  
(PERCENT MEMBERS RESPONDING)\*

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	451X5 (N=114)	COMP SAMPLE** (N=2,658)	451X5 (N=173)	COMP SAMPLE** (N=1,930)	451X5 (N=251)	COMP SAMPLE** (N=2,575)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	76	76	68	75	72	77
SO-SO	13	15	18	16	16	14
DULL	11	8	13	8	12	8
<u>PERCEIVED USE OF TALENTS:</u>						
FAIRLY WELL TO EXCELLENT	82	85	78	86	82	84
LITTLE OR NOT AT ALL	18	15	21	14	19	15
<u>PERCEIVED USE OF TRAINING:</u>						
FAIRLY WELL TO EXCELLENT	70	88	70	84	75	82
LITTLE OR NOT AT ALL	30	12	29	16	25	18
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	56	61	65	72	76	75
NO, OR PROBABLY NO	44	37	34	26	16	10
PLAN TO RETIRE	0	2	0	1	8	14

\* Columns may not add to 100 percent due to nonresponse or rounding

\*\* Comparative sample of Mission Equipment Maintenance career ladders in 1989 (Includes AFSCs 362X4, 411X2A, and 451X4)

TABLE 30

COMPARISON OF JOB SATISFACTION INDICATORS FOR MEMBERS OF 451X5 SPECIALTY JOBS  
(PERCENT MEMBERS RESPONDING)\*

EXPRESSED JOB INTEREST:	F-16 Job Variations									
	F-16 TEST STATION CLUSTER	RF TEST STA	P/P TEST STA	MULTI STA		CI TEST STA	D/I TEST STA	A-10 AVIONICS CLUSTER	SUPV/MGR/ ADMIN CLUSTER	TNG CLUSTER
				SUPV						
INTERESTING	70	75	62	67	71	75	69	80	68	
SO-SO	18	17	23	21	19	13	17	13	11	
DULL	12	8	15	12	10	11	15	7	21	
PERCEIVED USE OF TALENTS:										
FAIRLY WELL TO GOOD	81	80	76	91	83	82	81	82	68	
LITTLE OR NOT AT ALL	19	20	24	9	17	18	19	19	26	
PERCEIVED USE OF TRAINING:										
FAIRLY WELL TO GOOD	79	83	71	85	79	75	66	64	68	
LITTLE TO NOT AT ALL	21	17	24	15	21	25	33	36	26	
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:										
SATISFIED	64	78	61	55	64	62	69	72	53	
NEUTRAL	11	7	9	9	16	11	15	10	16	
DISSATISFIED	25	15	30	36	20	26	17	19	26	
REENLISTMENT INTENTIONS:										
WILL REENLIST	64	64	68	70	61	62	79	65	79	
WILL NOT REENLIST	35	35	32	27	37	38	21	19	16	
WILL RETIRE	1	1	0	3	1	0	0	17	0	

\* Columns may not add to 100 percent due to nonresponse or rounding

The responses of members in most jobs were quite positive. Most indicated effective use of talents and training. Although a high percentage (36 percent) of Multistation Supervisory personnel perceived their job as being least satisfying, they also indicated the most effective use of their talents and training. Training personnel, on the other hand, found their job the least interesting of all the jobs identified. D/I Test Station personnel expressed the least likelihood to reenlist. Overall, personnel across all career ladder jobs are satisfied with their jobs, feel their talents and training are adequately utilized, and gain some sense of accomplishment from their work.

In a comparative study of experience groups of the AFSC 451X5 career ladder and mission equipment maintenance personnel surveyed by OMC in 1989, data indicated that AFSC 451X5 personnel are slightly lower across most job satisfaction indicators (see Table 29). The biggest difference is in perceptions of the use of training, where AFSC 451X5 first-enlistment, second-enlistment, and career groups show a much lower satisfaction than the comparative sample (see Table 29).

#### IMPLICATIONS

This survey was requested by training personnel to obtain current task and equipment data for their use in evaluation of current training programs.

The findings of this survey suggest that the F-16/A-10 Avionics Test Station and Component specialty is a diverse and highly technical career ladder. Survey respondents were organized around the maintenance and use of automatic and manual shop test stations, support equipment, and specialized precision measuring equipment. The present classification structure, as described by AFR 39-1 Specialty Descriptions, accurately portrays the jobs in this study. No serious job satisfaction problems appear to exist within this specialty; however, the job satisfaction responses for 451X5 personnel were slightly lower than those of a comparative sample of Air Force personnel in 1989.

These findings could very well have a significant impact on training. Two distinct aircraft groups (F-16 and A-10) were identified, each performing separate and distinct functions. As pointed out previously, based on OSR data, task commonality between aircraft groups (other than general maintenance) is virtually nonexistent. Analysis of career ladder documents indicate that a major portion of the STS was unsupported by occupational survey data. Likewise, POIs 001 and 002, although theory-based courses with few performance tasks, were generally unsupported by the findings of this survey. The STS and both POIs, in addition to tasks not referenced, require extensive review by training personnel, subject-matter experts, and career ladder functional managers. Substantial information has surfaced to warrant considerable adjustments to this specialty's training program.

The findings of this OSR come directly from survey data collected from F-16/A-10 Avionic Test Station and Component members worldwide. These data are readily available to training and utilization personnel, functional managers, and any other interested parties having a need for such information. Much of the data are compiled into extracts which are excellent tools in the decision-making process. These data extracts should be used when a training or utilization decision is made.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY  
MEMBERS OF CAREER LADDER JOBS



TABLE I

## F-16 TEST STATIONS CLUSTER (STG19)

GROUP SIZE: 295  
 PERCENT OF SAMPLE: 55%

AVERAGE TIME IN TICF: 52 MONTHS  
 AVERAGE TAFMS: 80 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
E135 MAKE ENTRIES ON DD FORMS 1574 (SERVICEABLE TAG-MATERIEL)	89
E138 MAKE ENTRIES ON DD FORMS 1577-2 (UNSERVICEABLE (REPARABLE) TAG MATERIAL)	84
G172 ALIGN PATCH PANELS	82
G237 REMOVE OR REPLACE TEST STATION DISC DRIVES	79
G214 PERFORM PREVENTIVE MAINTENANCE OF F-16 DISC DRIVES	77
G186 INSPECT EQUIPMENT FOR CURRENT CALIBRATION DATES	72
F160 RESEARCH TECHNICAL DATA FOR PART NUMBERS	70
G248 UPDATE SOFTWARE	67
G226 REBUILD CABLES	62
G183 IDENTIFY DEFICIENCIES IN ATLAS PROGRAMS	58
F155 PREPARE QUALITY/MATERIAL DEFICIENCY REPORTS	55
A5 DETERMINE WORK PRIORITIES	49
D89 CONDUCT OJT	46
G178 COMPLEX F-16 MOBILITY FACILITIES	43
H258 PERFORM CONFIDENCE TESTS ON CI TEST STATIONS	41
H271 PERFORM DIAGNOSTIC TESTS OF STANDARD INERTIAL NAVIGATIONAL UNITS (INU)	40
G182 FABRICATE CABLES	39
K454 PERFORM CONFIDENCE TESTS ON RF TEST STATIONS	38
J431 REPAIR MISSILE RIUs	34
I318 CALIBRATE D/I TEST STATIONS	32
K457 PERFORM DIAGNOSTIC TESTS OF FREQUENCY SELECTIVE RECEIVER SYSTEMS (FSRS)	31
J415 PERFORMANCE TEST PSPs	30
I353 REPAIR D/I TEST STATION SELF TEST ITAs	27
G171 ALIGN DISC DRIVES	26
I369 REPAIR WAC HUD/EUs	25
H299 REPAIR F-16 RATE TABLES	25

TABLE IA

## RADIO FREQUENCY (RF) TEST STATION (STG80)

GROUP SIZE: 60  
 PERCENT OF SAMPLE: 11%

AVERAGE TIME IN TICF: 51 MONTHS  
 AVERAGE TAFMS: 72 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
K462 PERFORM DIAGNOSTIC TESTS OF RF TEST STATIONS	100
K454 PERFORM CONFIDENCE TESTS ON RF TEST STATIONS	100
K474 PERFORMANCE TEST RADAR ANTENNAS	100
K460 PERFORM DIAGNOSTIC TESTS OF RADAR ANTENNAS	100
K485 REPAIR RADAR ANTENNAS	100
K468 PERFORM ITA WRAPAROUND TESTS OF THREAT WARNING ITAs	100
K487 REPAIR RADAR TRANSMITTERS	95
K480 REPAIR IFF ITAs	93
K478 REPAIR AM-6639 (E-J) AMPLIFIER DETECTORS	92
K487 REPAIR RADAR TRANSMITTERS	90
G209 PERFORM PERIODIC INSPECTIONS OF TEST STATIONS	88
K490 REPAIR THREAT WARNING ITAs	88
G237 REMOVE OR REPLACE TEST STATION DISC DRIVES	83
K452 ANALYZE ATLAS PROGRAMS FOR FAULT ISOLATION OF THREAT WARNING ITAs	80
G197 MAINTAIN TOOL BOXES OR CONSOLIDATED TOOL KITS (CTK)	77
G248 UPDATE SOFTWARE	73
E139 MAKE ENTRIES ON TAC FORMS 140 (CTK INVENTORY CONTROL LOG)	68
G189 INVENTORY TEST STATIONS, CABINETS, AND ROLLAWAYS	60
G221 PREPARE AVIONICS EQUIPMENT FOR TURN-IN	57
G234 REMOVE OR REPLACE TEST STATION AIR REGULATORS	52
G213 PERFORM POWER-UP ON F-16 MOBILITY FACILITIES	48
G208 PERFORM PERIODIC INSPECTIONS OF F-16 MOBILITY FACILITIES	42
F151 ORDER PARTS BY TELEPHONE	38
G201 PALLETIZE F-16 MOBILITY FACILITIES	37
L566 VISUALLY INSPECT RADAR WAVEGUIDES	33

TABLE IB

## PROCESSORS/PNEUMATICS (P/P) TEST STATIONS (STG105)

GROUP SIZE: 66  
 PERCENT OF SAMPLE: 12%

AVERAGE TIME IN TICF: 47 MONTHS  
 AVERAGE TAFMS: 76 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
J385 PERFORM DIAGNOSTIC TESTS OF CIUs OR ACIUs	100
J421 REPAIR ALR-69 SIGNAL PROCESSORS	100
J382 PERFORM DIAGNOSTIC TESTS OF ALR-69 SIGNAL PROCESSORS	100
J432 REPAIR P/P TEST STATIONS	100
J429 REPAIR F-16 CADCs	100
J407 PERFORMANCE TEST ALR-69 SIGNAL PROCESSORS	98
J431 REPAIR MISSILE RIUs	98
J408 PERFORMANCE TEST CADCs	98
J413 PERFORMANCE TEST MISSILE RIUs	97
J412 PERFORMANCE TEST JETTISON RELEASE RIUs	95
J430 REPAIR JETTISON RELEASE RIUs	95
J446 SET UP AND ALIGN P/P TEST STATIONS	94
J391 PERFORM DIAGNOSTIC TESTS OF PNEUMATIC SENSOR ASSEMBLIES (PSA)	94
J425 REPAIR CONVENTIONAL RIUs	89
J246 SET UP EPVs	83
G245 SECURE CLASSIFIED MATERIALS	82
J392 PERFORM DIAGNOSTIC TESTS OF sPs	80
J447 SET UP VACUUM PUMP ASSEMBLIES	79
J442 REPAIR SW RIUs	76
J441 REPAIR SW ITAs	71
J387 PERFORM DIAGNOSTIC TESTS OF DIGITAL SIGNAL PROCESSORS (DSP)	67
J443 REPAIR VACUUM PUMP ASSEMBLIES	56
J444 SERVICE AIR CONDITIONER ASSEMBLIES	53
G205 PERFORM FOREIGN OBJECT DAMAGE (FOD) PREVENTION WALKS	44
F151 ORDER PARTS BY TELEPHONE	33

TABLE IC  
MULTISTATION SUPERVISORY JOB (STG73)

GROUP SIZE: 33  
PERCENT OF SAMPLE: 6%

AVERAGE TIME IN TICF: 72 MONTHS  
AVERAGE TAFMS: 113 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
H290 PERFORMANCE TEST INUs	97
H288 PERFORMANCE TEST FLCCs	97
H286 PERFORMANCE TEST FCC OR EFCCs	94
H295 REPAIR CI TEST STATION TRUs	94
H298 REPAIR F-16 INUs	91
H312 SET UP AND ALIGN INU PEDESTALS	91
J381 PERFORM CONFIDENCE TESTS ON P/P TEST STATIONS	88
J446 SET UP AND ALIGN P/P TEST STATIONS	85
J377 CALIBRATE P/P TEST STATIONS	85
B48 SUPERVISE INTEGRATED F-16/A-10 AVIONICS TEST STATION AND COMPONENT SPECIALISTS (AFSC 45155)	82
C85 WRITE APRs	82
J429 REPAIR F-16 CADCs	82
F159 RESEARCH MICROFICHE FOR PART INFORMATION	76
J410 PERFORMANCE TEST CONVENTIONAL RIUs	76
G175 CLEAN REMOVABLE DISCS	76
I313 ALIGN DISPLAY/INDICATOR (D/I) TEST STATIONS	73
A22 PLAN WORK ASSIGNMENTS	67
I339 PERFORMANCE TEST ADIs	67
I354 REPAIR D/I TEST STATION SRUs	67
G198 PACK OR UNPACK AVIONICS AND SUPPORT EQUIPMENT FOR MOBILITY OPERATIONS OR RETURN TO DEPOT	55
B32 DIRECT MAINTENANCE OF ADMINISTRATIVE FILES	52
A1 ASSIGN PERSONNEL TO DUTY POSITIONS	52
B40 IMPLEMENT SELF-INSPECTION PROGRAMS	52
D101 EVALUATE OJT TRAINEES	52
C61 EVALUATE CORROSION CONTROL PROGRAMS	52
I322 PERFORM DIAGNOSTIC TESTS OF HEAD UP DISPLAY/ELECTRONIC UNITS (HUD/EU)	52
I328 PERFORM DIAGNOSTIC TESTS OF WAC HUD/EUs	52

## TABLE ID

## COMPUTER INERTIAL (CI) TEST STATION (STG90)

GROUP SIZE: 70  
 PERCENT OF SAMPLE: 13%

AVERAGE TIME IN TICF: 45 MONTHS  
 AVERAGE TAFMS: 73 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
H290 PERFORMANCE TEST INUs	100
H264 PERFORM DIAGNOSTIC TESTS OF CI TEST STATIONS	100
H288 PERFORMANCE TEST FLCCs	100
H277 PERFORM ITA WRAPAROUND TESTS OF FLCC ITAs	100
H268 PERFORM DIAGNOSTIC TESTS OF FLCCs	100
H284 PERFORMANCE TEST ECAs	97
H293 REMOVE OR REPLACE CI TEST STATION TESTER REPLACEABLE UNITS (TRU)	96
H269 PERFORM DIAGNOSTIC TESTS OF FLIGHT CONTROL PANELS (FLCP)	94
H254 CALIBRATE CI TEST STATIONS	89
H298 REPAIR F-16 INUs	86
H280 PERFORMANCE TEST ACCELEROMETER ASSEMBLIES	84
G192 LOAD TEST PROGRAMS ON DISCS	81
H312 SET UP AND ALIGN INU PEDESTALS	77
G186 INSPECT EQUIPMENT FOR CURRENT CALIBRATION DATES	74
H297 REPAIR F-16 INS ITAs	74
H302 REPAIR FCS ITAs	70
G197 MAINTAIN TOOL BOXES OR CONSOLIDATED TOOL KITS (CTK)	69
H305 REPAIR INU HOLDING FIXTURES	66
G235 REMOVE OR REPLACE TEST STATION COMPUTER COMPONENTS	61
H299 REPAIR F-16 RATE TABLES	59
H291 PERFORMANCE TEST INUs USING NAVIGATION/CALIBRATION ADAPTERS	56
G247 SOLDER OR DESOLDER TEST STATION COMPONENTS	50
G243 REPAIR PATCH PANELS	47

TABLE IE

## DISPLAYS/INDICATORS (D/I) TEST STATION (STG42)

GROUP SIZE: 61  
 PERCENT OF SAMPLE: 11%

AVERAGE TIME IN TICF: 52 MONTHS  
 AVERAGE TAFMS: 79 MONTHS

TASKS	PERCENT MEMBERS PERFORMING
I320 PERFORM CONFIDENCE TESTS ON D/I TEST STATIONS	97
I313 ALIGN DISPLAY/INDICATOR (D/I) TEST STATIONS	95
I341 PERFORMANCE TEST HSI <sub>s</sub>	93
I339 PERFORMANCE TEST ADI <sub>s</sub>	90
I355 REPAIR D/I TEST STATION TESTOR REPLACEABLE UNITS (TRU)	87
I329 PERFORM DIAGNOSTIC TESTS OF WIDE ANGLE CONVENTIONAL (WAC) HUD/PDU <sub>s</sub>	84
I328 PERFORM DIAGNOSTIC TESTS OF WAC HUD/EU <sub>s</sub>	84
I371 REPAIR WAC HUD/PDU <sub>s</sub>	80
I350 REMOVE OR REPLACE PHOTOMETRIC BENCH COMPONENTS	80
I340 PERFORMANCE TEST AZIMUTH INDICATORS	80
I354 REPAIR D/I TEST STATION SRU <sub>s</sub>	77
G240 REPAIR F-16 TEST STATION DISC DRIVES	75
I370 REPAIR WAC HUD/PDU ITA <sub>s</sub>	72
G248 UPDATE SOFTWARE	69
I351 REPAIR AZIMUTH INDICATOR ITA <sub>s</sub>	64
I323 PERFORM DIAGNOSTIC TESTS OF HUD/PILOTS DISPLAY UNITS (PDU)	61
I352 REPAIR AZIMUTH INDICATORS	61
G226 REBUILD CABLES	57
I327 PERFORM DIAGNOSTIC TESTS OF REO/INDICATOR UNITS (IU)	51
G243 REPAIR PATCH PANELS	51
I346 PERFORMANCE TEST REO/EU <sub>s</sub>	48
I326 PERFORM DIAGNOSTIC TESTS OF RADAR ELECTRO-OPTICAL (REO)/EU <sub>s</sub>	46
I360 REPAIR HUD/PDU <sub>s</sub>	46
G247 SOLDER OR DESOLDER TEST STATION COMPONENTS	44
I366 REPAIR REO/IU ITA <sub>s</sub>	43
G245 SECURE CLASSIFIED MATERIALS	39

TABLE II

## A-10 AVIONICS CLUSTER (STG29)

GROUP SIZE: 108  
 PERCENT OF SAMPLE: 20%

AVERAGE TIME IN T1CF: 48 MONTHS  
 AVERAGE TAFMS: 85 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
L544 PERFORM FAULT ISOLATION TESTS ON TACAN RTs	84
L558 REPAIR TACAN RTs	83
N617 ALIGN A-10 TV MONITORS	74
N628 REPAIR A-10 TV MONITORS	73
Q707 REPAIR SAS CONTROL PANELS	72
L505 BENCH CHECK IFF CONTROL BOXES	69
M569 ADJUST HEAD-UP DISPLAY (HUD) CONTROL UNIT SRUs	64
Q677 CALIBRATE INU USING HOT MOCK-UPS	60
Q665 BENCH CHECK FUEL QUANTITY INDICATORS	59
L530 ISOLATE MALFUNCTIONS IN UHF FREQUENCY INDICATORS	59
M606 REPAIR CUs	58
L537 ISOLATE MALFUNCTIONS IN VHF FM ANTENNAS	56
M600 REPAIR A-10 INUs	55
L539 ISOLATE MALFUNCTIONS IN VHF SYSTEM (AN/ARC-186) COMPONENTS	54
L549 REPAIR AIRCRAFT INTERCOM CONTROL PANELS	49
M592 PERFORM IATS CALIBRATION	47
O637 ISOLATE MALFUNCTIONS IN INTERPHONE CONTROL BOXES	46
Q704 REPAIR NAV MODE RELAY BOXES	45
Q705 REPAIR NAV MODE SELECT PANELS	43
L500 ALIGN VHF FM ANTENNAS	42
R728 CALIBRATE TORQUE WRENCHES	37
R773 REPAIR HARS TEST SETS	37
R760 REMOVE OR REPLACE NAV MODE RELAY BOX SRUs	32

TABLE III

## SUPERVISORY, MANAGERIAL, AND ADMINISTRATIVE CLUSTER (STG09)

GROUP SIZE: 102  
 PERCENT OF SAMPLE: 19%

AVERAGE TIME IN TICF: 91 MONTHS  
 AVERAGE TAFMS: 164 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
A16 PARTICIPATE IN MEETINGS, SUCH AS STAFF MEETINGS, BRIEFINGS, CONFERENCES, OR WORKSHOPS	80
B51 WRITE CORRESPONDENCE	72
A5 DETERMINE WORK PRIORITIES	67
C85 WRITE APRs	65
A3 COORDINATE JOB REQUIREMENTS WITH OTHER SECTIONS	65
E113 MAKE ENTRIES ON AF FORMS 1297 (TEMPORARY ISSUE RECEIPT)	60
C79 REVIEW CORRESPONDENCE	57
F159 RESEARCH MICROFICHE FOR PART INFORMATION	55
B49 SUPERVISE INTEGRATED F-16/A-10 AVIONICS TEST STATION AND COMPONENT TECHNICIANS (AFSC 45175)	49
A10 DEVELOP WORK METHODS OR PROCEDURES	48
C52 ANALYZE WORKLOAD REQUIREMENTS	46
B33 DIRECT MAINTENANCE OF FACILITIES OR WORK AREAS	45
B37 IMPLEMENT QUALITY CONTROL PROGRAMS	43
B48 SUPERVISE INTEGRATED F-16/A-10 AVIONICS TEST STATION AND COMPONENT SPECIALISTS (AFSC 45155)	41
C75 EVALUATE WORK SCHEDULES	39
C87 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS	32
F168 VERIFY AND UPDATE REPAIR CYCLE ASSET MANAGEMENT LISTS (D-23)	31
B50 SUPERVISE MILITARY PERSONNEL WITH AFSC OTHER THAN 451X5	29
G216 PERFORM QA INSPECTIONS OF TEST STATIONS	26
F163 UPDATE DAILY DOCUMENT REGISTERS OR ITEM SURVEILLANCE LISTS (DOA) (R-26)	26
E112 MAKE ENTRIES ON AF FORMS 126 (CUSTODIAN REQUEST LOG)	26
F145 MAINTAIN PROPERTY CUSTODIAN AUTHORIZATION/CUSTODY RECEIPT LISTINGS (CA/CRL)	24
G185 INSPECT COMMON SUPPORT EQUIPMENT	23



TABLE IV  
TRAINING CLUSTER (STG18)

GROUP SIZE: 19  
PERCENT OF SAMPLE: 4%

AVERAGE TIME IN TICF: 81 MONTHS  
AVERAGE TAFMS: 103 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS	PERCENT MEMBERS PERFORMING
D109 SCORE TESTS	100
D107 PREPARE LESSON PLANS	100
D88 ADMINISTER TESTS	94
D90 CONDUCT RESIDENT COURSE CLASSROOM TRAINING	89
D110 WRITE TEST QUESTIONS	79
D96 DEVELOP TRAINING AIDS	68
D92 COUNSEL TRAINEES ON TRAINING PROGRESS	63
D102 EVALUATE RESIDENT COURSE STUDENTS	63
D108 PROCURE TRAINING AIDS, SPACE, OR EQUIPMENT	47
D95 DEVELOP RESIDENT COURSE OR CAREER DEVELOPMENT COURSE (CDC) CURRICULUM MATERIALS	42
D94 DETERMINE RESIDENT COURSE TRAINING REQUIREMENTS	37
B30 COUNSEL PERSONNEL	37
D98 DIRECT OR IMPLEMENT TRAINING PROGRAMS OTHER THAN OJT	32
D105 MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS OTHER THAN MMICS WORKCENTER LISTINGS	26
D93 DETERMINE OJT TRAINING REQUIREMENTS	26
I321 PERFORM DIAGNOSTIC TESTS OF D/I TEST STATIONS	26
D103 EVALUATE TRAINING METHODS OR TECHNIQUES	21
F142 DRAFT OR PROCESS FORMS, REPORTS, AND CORRESPONDENCE USING WORD PROCESSORS AND COMPUTER KEYBOARDS	21
D89 CONDUCT OJT	21
J407 PERFORMANCE TEST ALR-69 SIGNAL PROCESSORS	21
H290 PERFORMANCE TEST INUs	21
C74 EVALUATE UNIT EMERGENCY PLANS	21
B43 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	16
D100 EVALUATE INSTRUCTOR PERFORMANCE	16
H291 PERFORMANCE TEST INUs USING NAVIGATION/CALIBRATION ADAPTERS	16